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THE DEATH OF QUEEN ALEXANDRA

BEFORE the ordinary business of the Evening Meeting of November 23 was taken and the paper read the PRESIDENT said: There is one matter which takes precedence of all others to-night. We are a Royal Society and our Patron is His Majesty the King. We therefore should express our sympathy with him in the particular circumstances of the moment, the loss of Queen Alexandra. The Council thought it right this afternoon to pass the following resolution:

> "The President and Council of the Royal Geographical Society beg leave, with the expression of their loyal duty, to offer to His Majesty the King, their Patron, assurance of their sympathy in the great loss which Their Majesties and the Royal Family have suffered in the death of Queen Alexandra."

I think that this meeting would like to associate itself with that resolution, and I would ask all those who are of that opinion to rise in their seats.

The Resolution of Council was transmitted to the Secretary of State, who on December 2 informed the President that the loyal and dutiful message of the Royal Geographical Society had been laid before the King, who had commanded the Secretary of State to convey His Majesty's thanks for the expression of sympathy.

FROM YUNNAN-FU TO PEKING ALONG THE TIBETAN AND MONGOLIAN BORDERS, including the last journey of Brig.-Gen. George E. Pereira

H. Gordon Thompson, M.D., F.R.C.S. Eng,

Read at the Meeting of the Society, 23 November 1925.

IT will be fresh in the minds of every one from the lecture given by Sir Cecil Pereira that in the winter of 1922–23 Brig.-Gen. George Pereira made his memorable journey from Peking to Lhasa on foot, and it was on his return from that expedition as he passed through Yunnan-fu that we laid our plans for another journey, which he quite intended should be his last. For myself I had long wanted to visit the Tibetan border, and thus we joined forces and left Yunnan-fu on July 17.

The journey may be divided into six parts: the first, from Yunnan-fu to Likiang; the second, Likiang to Batang; the third, from Batang across the Washi country to Kantse; the fourth, across the eastern end of the Golok country to Sotsong Gomba at the bend of the Yellow River; the fifth, Sotsong Gomba to Lanchow; the sixth, Lanchow to Paotow and thence by rail to Peking.

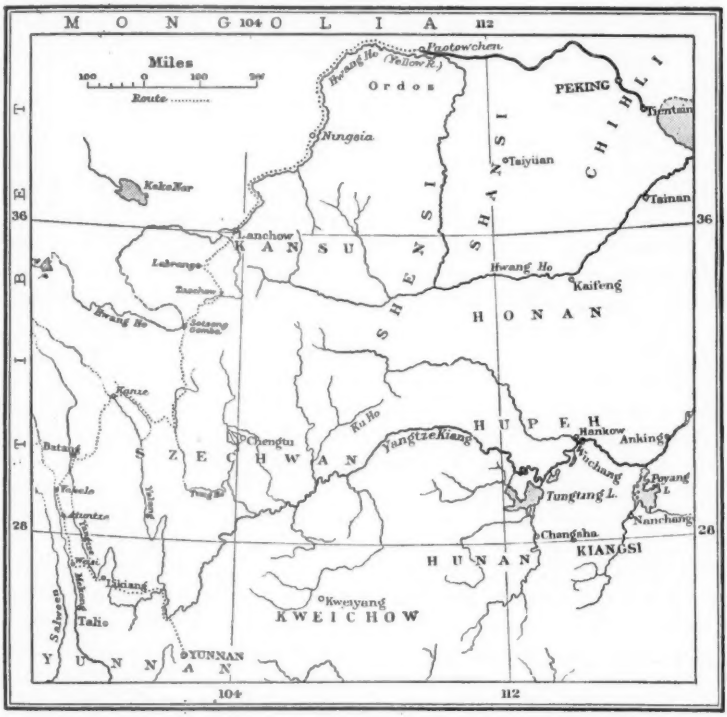
Although we each made our own notes, we divided the duties of the journey roughly as follows: The General made a compass traverse of the route, while I was responsible for the altitudes and the photography; while whenever we stopped for a rest-day, I took the opportunity of promoting goodwill by seeing patients and helping them in body and soul.

Wherever we stopped, when the people knew that I was a doctor, they flocked along with their sick and suffering imploring help. At one little market town where we rested one day I saw 250 patients, and to my mind medical work is a golden key to unlock the doors for peaceable exploration.

The first section of our journey was from Yunnan-fu to Likiang—twenty-one stages. We did not follow the usual road, which is *viâ* Talifu, but struck north-north-west to the Soling, which joins the Yangtze where it gives its most southerly bend. Taking a route about 10 miles from the right bank of the Yangtze we went almost due north, crossed the Yangtze by ferry at a little place called Hsin Chuang, and from there in five stages, going almost due west, we reached Yungpeh—a Hsien city with a good wall, but the city itself in rather a dilapidated condition.

From Yungpeh two stages took us to Tzuli, where, as far as we have been able to discover, is the only bridge spanning the Yangtze. We stayed at Tzuli village, and the next morning at 6.30 started on the last stage to Likiang. It was a beautiful morning, and 2 miles' tramp brought us in view of the great river away down below. On the face of the steep cliffs opposite was a small village, and a temple with white

walls lay glistening in the morning sun, while zigzagging upwards was the track which we should have to follow after crossing. It was a descent of 1500 feet to the river-bank where the dark brown waters, eddying and swirling in great whirlpools, passed under the bridge. It is remarkable that this mighty river, with a course of over 2000 miles, has apparently only this one bridge—a suspension bridge with two pairs of six chains slinging the boards, with a railing along the side, the whole in a very fair state of repair. It is true that there used to be another near Chaotung,



Sketch-map of Dr. Gordon Thompson's route from Yunnan-fu to Peking.

but on account of raids from the independent country to the north whereby Chinese were carried off into slavery, the Chinese broke down the bridge, with the result that at Tzuli is the only one left.

After crossing the bridge we began to climb the hill and cliff—a tremendous pull up of over 5000 feet, passed through the village of Tui Lao Koh and reached the top at 12 noon. From there it was a steady gradient down into the Likiang plain.

We arrived at Likiang at 7.30, and the first section of our journey was over. Here we learned that Mr. D'Arcy Weatherbe, who was travelling

by the main road, had been captured by brigands a few days before, and we felt thankful that we had come by this unfrequented route, and so missed the robber band. At Likiang we engaged Tibetan muleteers for the next three weeks' journey.

It should never be forgotten that more than half of the inhabitants of the Province of Yunnan are not Chinese but tribes-people, each with distinctive language, dress, and customs, quite different from the Chinese. Of the tribes with which we came in contact during our journey probably the most numerous were the Mosu, or, as they call themselves, the Nashih. Where the Mosu came from is somewhat obscure, as they do not appear to be connected with the Tibetan tribes on the west side of the Min river.

Likiang is the old Mosu capital, and inscriptions relate how, nearly four hundred years ago, the Mosu king drove back the Tibetans, who were encroaching on their territory, and established themselves right along the valley of the Mekong. In the eighteenth century the Mosu king allied himself with the viceroy of Szechwan, hoping to become paramount over the district from Batang to Likiang, but the Chinese, following their custom prevalent even to this day of trying to set off one party against another, divided the country into two parts and attached one to Yunnan and the other to Szechwan. The last of the Mosu chiefs—a woman—welcomed a Chinese official, to whom she practically handed over the sovereignty, and the sub-chieftains were retained in their official posts to assist in the administration of the country. The Mosu, or Nashih, people are thus to be found right up the valley of the Mekong and in the country round Likiang.

The Lisu tribes-people are more aboriginal in character. Driven up to the hills, they inhabit pretty much the same region, but are scattered in the fastnesses of the mountains, while in addition there are Loutze, La-ma-jen, with an infiltration of Tibetans from across the frontier.

I was interested to notice the presence of cowrie shells, especially among the Lisu people. On inquiry I found that they had come from Burma and India; that they are valued at 100 to the Chinese tael, are sometimes used for barter, and are largely used for decoration of the headdress of the girls, being looked upon as a kind of dowry.

We left Likiang after a few days' rest, and crossed the divide between the Yangtze and Mekong by Litiping—a beautiful little plateau about 5 miles in length, carpeted with flowers, with pine woods along its border and great flocks of sheep grazing on the pasture land.

The valley of the Mekong, with its rope bridges, its narrow tracks, and its landslides, has been so frequently described that I will pass rapidly over this part of the journey. We were fortunate in that although we were travelling in the rainy season we did not have such excessive rains as to make the track impassable; but at the time of our journey there was a severe form of malignant malaria prevalent along the Mekong

THE MEKONG VALLEY LOOKING SOUTH

THE MEKONG NEAR ATUNTZE

valley, which the Chinese call the " chang chih," and which is generally very rapidly fatal. Halfway up the Mekong valley our chief Tibetan muleteer developed this malignant malaria and, in spite of intra-muscular injections of quinine, died within thirty-six hours. We had to bury him by the roadside.

We were glad to get away on our journey again after the delay caused by this fatality, and found our last few days before reaching Atuntze very trying. The mules were getting played out, and the road, in places only a handspan wide, was made all the more dangerous by the rains, and a slip of a mule would have meant straight down to the Mekong and the loss of one of our loads. The day before reaching Atuntze one of the mules died, and another was so exhausted that it had to be left behind at a wayside Tibetan house, the occupant giving a sum equivalent to ten shillings for it in the hope that it might recover. A few days' rest in Atuntze, which is 10,300 feet above sea-level, was most welcome.

Leaving Atuntze on September 5, a further climb of 1180 feet brought us to the Chu La, 11,480 feet, and from there the road makes a steady descent, following the Dong River until it again joins the Mekong, the left bank of which we followed for four days until we arrived at Yen Ching (the salt wells) and Yakalo. Each day of this part of our journey was memorable for the magnificence of the scenery. On the third day I have notes as follows in my diary :

" After reaching our highest point, 10,199 feet, we had a most glorious panorama. Behind and to our left was the great sacred mountain of K'a-Ka-Pu, now about 35 miles distant, the top covered with snow. From this ran the range of the Mekong–Salween divide, also snow covered. Further north a great peak stood out glistening white in the sun—this mountain is Ta Mi Yung Below the peaks were banks of white cloud, lower down below the snow-line the reds and greens of the hillsides sloped sharply down to the Mekong, visible as a chocolate-brown streak away below, with patches of vivid green in the lower valleys, where there was land to be cultivated."

On our sixth day we crossed the frontier between Yunnan and Szechwan, and our escort, which on leaving Yunnan-fu was thirty soldiers well armed with repeating rifles, had dwindled down to an old woman, who carried in one hand our precious hurricane lamp and with the other held my pony while I was taking a photograph or carried the official paper to hand on to the headman of the next village.

The salt-wells at Yakalo are on the banks of the Mekong, and the openings of the wells are covered by the river during the rainy season, so that work has to be suspended for several months each year. The brine is drawn from the wells and then poured out to evaporate on the flat terraces built specially for this purpose.

After three days' rest at Yakalo, where we enjoyed the hospitality of Père Goré, who not only provided us with most useful information, but

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also arranged for further transport, we started for Batang. It was first necessary to cross the Yangtze–Mekong divide, which we did by the Cha-La pass. This we made 14,130 feet—a stiff climb—5500 feet above Yakalo and 6800 feet above the Mekong River. From the Cha-La one could look back to the Mekong basin with the snow-capped peaks of the Mekong–Salween divide and forward to the Yangtze watershed. Our route was now a gradual descent with one or two smaller passes, in one case rising to 13,111 feet, and the Bong-la 13,054 feet, until at last as we emerged from the Bum valley the Yangtze could be distinguished in the distance away below as a shining ribbon with numerous bends.

The track now descended to the Yangtze, and we stayed at Gunra, a little village 7997 feet above sea-level, and about 150 feet above the river. From near Gunra, looking north, there was an excellent view of the bends, and our route kept close to the right bank until we crossed by the ferry at Drubalong, where we spent the night. After following the left bank for another 13 miles we slowly left the river and crossing a spur of hills were in the valley of the Batang River, and a few hours later were in Batang itself, fifty-five days after leaving Yunnan-fu.

Batang is a small town with from two hundred to four hundred families. We made the altitude 8276 feet. Although the Chinese have a small garrison there, they are hemmed in on all sides by the Tibetans. This is also the case at Litang, halfway between Batang and Tatsienlu. Batang is on one of the main trade routes between China and Lhasa, but although at present most of the trade goes from Tatsienlu by the northern route, yet there is no doubt that Batang is of considerable importance.

A monastery of the Bon sect was founded in A.D. 600, and the district was conquered in turn by Mongols and the Mosu—the Tibetans drove out the Mosu in A.D. 1650, and later the Chinese came into and kept possession, though the population is almost entirely Tibetan.

In 1905 the Chinese Amban, returning from Lhasa, was killed just outside Batang, and in revenge Chao erh fung, the viceroy of Szechwan, destroyed the monastery and beheaded the chief Lama. The Lamasery belongs to the Red sect.

Between Batang and Kantse, our next objective, lies the territory of three important Tibetan tribes—the Lengkashi, the Washi, and the Nyarong. It had been our intention to reach Kantse by a circuitous route more to the north, parallel to the Yangtze, which had been traversed before by Mr. Eric Teichmann, but the Tibetan magistrate at Gartok refused permission, and as it was just inside the Tibetan frontier this route was therefore ruled out.

The usual road due east to Tatsienlu *viâ* Litang was closed by brigand bands of Lengkashi, who were reported to be attacking Litang, and as

we were quite determined not to return by the way that we had come, the suggestion was made that we should attempt to cross the Washi country. This was the more attractive as the Washi country had not previously been crossed by Europeans, yet it was known that the sources of several large tributaries of the Yalung, which in turn pours its waters into the Yangtze, were in this hitherto unexplored country.

With the kind help of Mr. MacLeod and Dr. Hardy of the Tibetan Christian Mission, who had been of service to the Queen of the Washi tribe when she was a fugitive in Batang, we secured Washi tribesmen who expressed their willingness to assist us to cross their country. The Chinese commander of the garrison did his best to stop us making the journey, but after General Pereira had interviewed him and written him a very stiff letter, he gave way on condition that we each signed and sealed a document, in which we stated that we were going against his advice and relieved him of all responsibility for our lives and property.

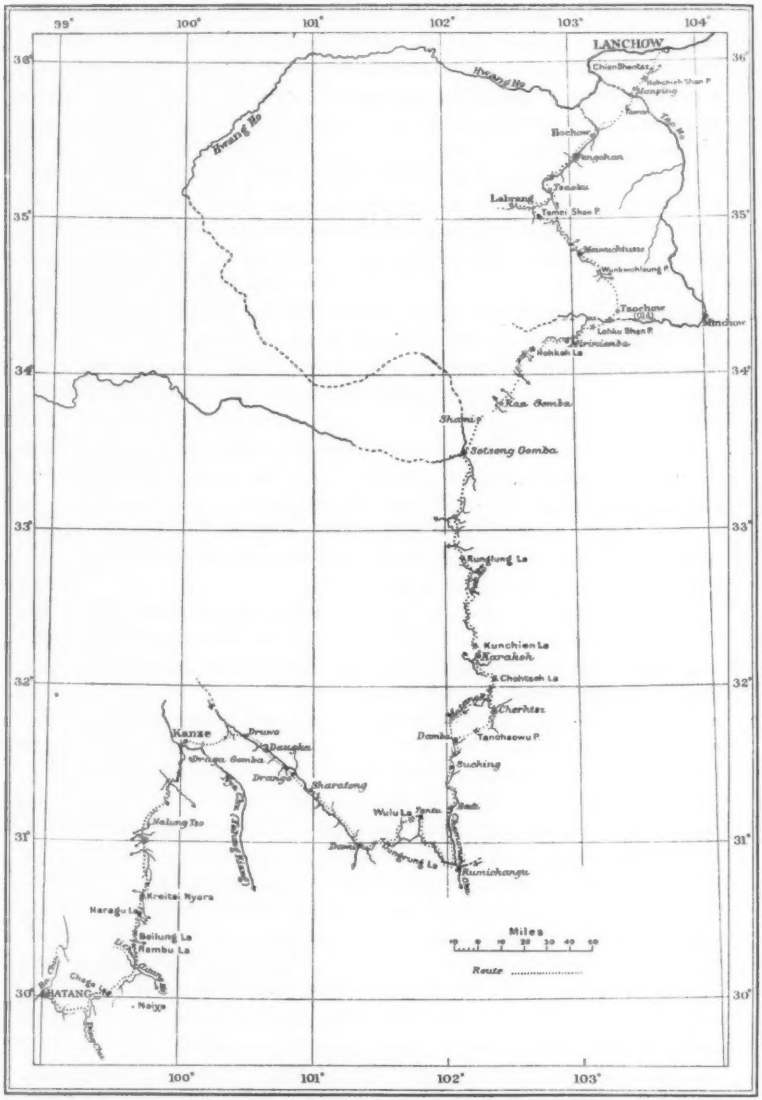
The Washi are divided into three districts, called the Monia or Mao Ya, the Dei Yung or Ko tun, and the Tsong Hsi, each with its separate chief, but all owing a loose allegiance to the Queen.

The Queen of the Washi was written to by MacLeod, and replied that her people might take us to Kantse; she *thought* the road was all right, but it was best to keep our eyes open.

Twelve days were spent in Batang making preparations. As it was all nomad country we had improvised tents of Chinese calico, and at last, on October 5, started with four riding-ponies, fifteen yaks for baggage, and six Washi, mounted and armed.

It was raining as we drew out of Batang and made our way up the valley of the Ba Chu. Our course lay south-east, following the Litang road, and as we entered the gorge with its high rocky hills, at first bare but later covered with trees, it did indeed seem gloomy in the extreme. Only a short distance from Batang we passed the place where the Chinese Amban returning from Lhasa to Peking was killed in 1905. It is marked by an inscription cut in the rock. We crossed the stream four times by rickety bridges, and Pereira said that by the one at the top of the valley a handful of men could hold up an army. The stream, flooded by the rain, roared on its way, and it was difficult to get the yaks across. During this first day we travelled only 9½ miles, but mounted 1260 feet, and at night stayed at a little place called Militing, where was the last house before we got across the Washi country.

The next day, again following the Ba Chu, we saw the traces and passed the place where four days previously a fight took place between the soldiers of the Batang garrison and one of the lamas who was wandering about the country raiding the weaker villages, attacking travellers, and incidentally trying to pay off an old grudge which he had against another of the powerful lamas in the district Several of the yaks were



Sketch-map of the route from Batang to Lanchow.

NOTE.—The longitude of the great bend of the Hwang Ho is from the observations of Capt. de Fleuselle on the expedition of Major D'Ollone (*Geo. Journ.* **36**, 357, September 1910).

particularly obstinate during this day's journey, and one of them took a plunge into the stream with my precious box of photographic material and a leather box containing my warm clothing. However, shortly after we reached a good camping-place at 12,321 feet the sun came out, and we camped at Pangdramo, a sheltered spot where were the ruins of two houses. I was able to empty the saturated boxes and dry off the contents in the sun. The next morning we were off at 7 a.m., and after 6 miles going almost due east we branched off from the Litang main road, and, still steadily mounting, began to get out of the deep and thickly wooded valleys and above the tree-line. We ascended a wide-open valley till at last we came to the pass called by the Chinese Ta Sa Shan and by the Tibetans Tsangbunga La.

There was some snow on the ground, and a cutting wind was blowing over the pass. We wanted to get the height by the boiling-point. The caravan went on while we were fixing up the apparatus, but on attempting to light the lamp match after match went out with the wind until only one was left. I persuaded Pereira and the Tibetan boy to lie on the ground, then I stripped off my raincoat and threw it over them with the hypsometer inside. The last match was struck inside this tent, succeeded, and the altitude proved to be 15,610 feet.

As we crossed the pass, twin peaks with some snow on their summits came into sight, and were typical of this wild and barren country. After a descent of 1700 feet we camped by a beautiful little stream, a tributary of what was sometimes called by our Washi Tibetans the Ding Chu and at other times the Ta So.

According to the map " Tibet and Adjacent Countries," the Ding Chu is shown flowing past Ta So. This therefore was probably the Ding Chu, and the next day we followed it up to its source at the pass called the Chaga La

There was some doubt as to whether this so-called Ding Chu was not the Lamaya, but we were forced to the conclusion that the Lamaya, into which the Ding Chu is always described as pouring its waters, almost certainly takes its origin in the southern slopes of the Nai Ya snow range, as suggested in Bacot's map of the Pic Desgodins.

The Ding Chu valley was well wooded, and along this part of the route there were the remains of houses which had been destroyed by Tibetan raiders. As we made our way up this valley our Washi headman, who with another of the Yak drivers had been out scouting, came to tell us that he had heard that the Tibetans were attacking the Chinese garrison at Litang, and that probably the Lengkashi tribesmen, with whom the Washi were not very friendly, would be on the war-path. However, he thought it was best to go on, but keep a sharp look-out by scouts sent on ahead.

About two-thirds of the way up the Ding Chu valley we obtained a good view of two snow-covered peaks between which the track from

Litang to the Lengkashi country enters their territory. Fortunately, we did not encounter the Lengkashi raiders.

The pass called the Chaga La is 14,930 feet high, and not only forms the Ding Chu–Li Chu divide, but also is the boundary between the Batang district and the Washi country. We were now right in the country of the Monia Washi and near the sources of origin of the Li Chu or Litang River.

As we descended from the pass called the Chaga La, we followed a small stream which in turn emptied into the Shara Chu, one of the three main sources of the Litang River. By this tributary of the Ding Chu we pitched what we called our Sum-ba-a-la camp, 1700 feet below the pass and 13,900 feet above sea-level. Looking back up the valley, bare wild rocky moraines with patches of low scrub characterized the view. Looking forward, in the distance running almost at right angles to this valley was a high snow-range, with Nai Ya as its highest point, forming part of the system of which the Pic Desgodins is probably the highest point, variously estimated at from 19,000 to 25,000 feet high. The Shara Chu takes origin on the northern slopes of the Nai Ya snow-range, and here we saw our first Washi nomad encampment. There were about twenty-two tents—twenty black ones and two white lamas' tents—with about six hundred yaks, besides sheep and goats. We crossed the river and passed through the edge of the camp where the sheep and yaks were grazing. With considerable difficulty, owing to the opposition of our Washi yak-drivers, I secured a photograph which shows this camp with the Nai Ya snow-range and the origin of the Shara Chu, one of the sources of the Li Chiu.

The valley, about $\frac{1}{2}$ to $\frac{3}{4}$ mile wide, was grassland with good pasturage, but no trees. We chose a sheltered spot a little lower down the valley and camped, the altitude being 13,450 feet. It was October 9, and the penetrating cold winds from the north swept the valleys. From this date we had practically no fuel except yak-dung.

The next day we moved on down the valley about 4 miles, and after crossing by a ford 25 feet wide by 2 feet deep to the western side of the Shara Chu, camped close to one or two nomad tents, whose owners were friends of our guides. Our Washi yak-drivers took this opportunity of exchanging three of their yaks which were getting somewhat tired, and we were all glad of a short stage and a day's rest.

As we crossed the Shara Chu we noticed a main track going off to the east, and were told that this was the small road to Litang. Our route was now more directly north. We emerged from the Shara Chu valley into a plateau with low hills covered with a coarse grass; higher up was limestone rock, and away to the west a snow-peak called Dun Sha. In this grassy Monia plateau three streams—the Monia Chu from the north-west, the Heimu Chu from the north, and the Shara Chu from the south-west—united to form the Li Chu, or Litang, which flows for 300

miles to its junction with the Yalung, a tributary of the Yangtze. The Monia plateau was about 8 miles each way; on the higher grassy slopes were herds of gazelle, while on the lower parts of the plateau near the small rivers were numerous black tents and thousands of sheep and yaks. In one encampment alone I counted twenty-seven tents.

The Monia plateau and the valley of the Litang river is the main centre of the Monia section of the Washi. Unfortunately we did not see the Queen of the Washi, as she was half a day's journey down the valley. We pushed on due north up the valley of the Heimu Chu till we camped at the foot of the pass called Rambu La. It was a barren spot and bitterly cold. Just as we were turning in I heard a gentle patter on the tent, and found it was snowing hard and blowing from the north. During the night I heard Pereira calling for the Tibetan boy, and looking out I saw that the front of our flimsy tent had collapsed with the weight of snow and the wind. It was fixed up somehow, and soon morning dawned. We struck camp at 7.30 a.m. and struggled up a long steep climb till we reached the top of the Rambu La—about 14,400 feet. Here we had a most wonderful view: looking south we could see range upon range, and in the far distance a very high snow-peak, probably the Pic Desgodins. Northward was a valley with hills surrounding it covered with snow and a river flowing to the east, probably a tributary of the Ho Chu.

I tried to get the boiling-point at the Rambu La, but unfortunately our last bottle of methylated spirit was found to be broken, and in spite of trying to get the tiny cup of water to boil by a continuous supply of matches and some of the fur out of my fur lining, we had at last to give it up and take 14,400 feet as the approximate height.

A descent into the valley and a climb up the opposite side brought us to the next pass—the Beilung La, about 400 feet higher than the Rambu La. This was a very narrow pass, and northward from the top was an amphitheatre of hills with a small stream running out at its eastern side and a high rocky peak to the west. We skirted this circle of hills and crossed another ridge by a pass called the Tachi.

Between the two passes Pereira's pony went lame and something went wrong with his compass. However, one of the Tibetans let him have his pony and I supplied him with a prismatic compass, and so we managed to get along and keep our records. I spent an hour or two fixing up the hypsometer to work with a candle instead of methylated spirit, and found that the boiling-point gave the altitude of our camp as 14,470 feet. It was a bitterly cold night, snow and a strong north wind; hardly any fuel to be obtained, and Pereira beginning to feel distinctly unwell.

We continued down the valley, crossed a small river flowing west—evidently a tributary of the Ho Chu—and then continued across a great open valley now covered with snow. About 5¼ miles from the start we

crossed the Haragu La (about 14,400 feet), and descended a few hundred feet down a valley into a big open plateau surrounded by mountains except at a gap at the north side and another at the south, where a small river, the Tzeku Chu, found its way in and out. The whole of this plateau, about 2 miles wide and 7 long, was one large grassy peaty surface with black mud in between the hummocks of grass, very tiring for the animals. There was no sign of life except a few gazelle on the hillside.

We left the plateau by the gap on the north, a low pass called the Creitei Nyara, and after another mile and a half camped in a valley called Jouriku. Again the only fuel obtainable was dried yak-dung, and as all the cooking had to be done in the open, often with snow falling, the little dough cakes which the boy contrived to make were literally dough in the centre, and these and everything else tasted of the smoke from the abominable fuel, and Pereira was ill and was feeling it difficult to take food of any kind. Several inches of snow fell in the night, but in the morning the sun came out and it was a little warmer. We pushed on down the valley and then over a low pass—the Jyarai La, about 13,650 feet.

We had seen no sign of human beings for several days except the remains of old nomad camps, but just before reaching the foot of the pass a Chinese, who had asked if he might join our party from Batang to Kantse, attempted to take a short cut across a spur of hill and through a small valley. He rejoined us and, trembling with fright, told us that he had seen the dead body of a man bound hand and foot close to his path. Our head Washi muleteer immediately took the best pony and went scouting ahead, but nothing happened, and although our path now went through a narrow defile with great cliffs on each side, we crossed the pass without any trouble. The Washi seemed to think the man was probably the victim of one of the blood feuds for which the Tibetans are famous.

Another low pass, the Sama La (13,750 feet), was crossed without difficulty, and we began to get down to the Lung Chu plateau. The valley of this river was quite deserted, but we passed a big camping-ground where I obtained a picture of one of the stone fireplaces which are to be found all over the nomad country. When they strike camp either to move their grazing-ground or to get to lower levels for the winter months, the fireplace is left behind, and is thus ready when they return the next season and erect their tents in the same place.

Before crossing the Sama La we had a sharp fall of snow, and on coming down into the plateau, which was about 6 miles long by 2 wide, it again began to snow heavily, and we had quite a blizzard from the north. The plateau is like sponge, with the usual black peat-like surface about 15 inches thick broken into small islands with patches of boggy water in between. It was difficult to see owing to the blizzard, and intensely

THE MEKONG NEAR PAH-TIH

UPPER VALLEY OF THE YANGTZE NEAR BATANG

cold. However, we made our way slowly across to the west side, and though it was still snowing reached a little firmer ground, pitched our tents, put oil-sheets on the ground, and tried to make ourselves as snug as our calico tents would allow.

The General was very unwell. He tried to eat some soft-boiled rice with milk; but it was of no use. Everything was smoked and hardly anything was cooked. The boy had a frightful job to keep his fire going in the snow and wind. Fortunately, before leaving my wife had put in one or two special things in case of emergency, so with great difficulty I produced some food free from smoke which he could take. Thereafter I kept him going with a simple invalid diet, some of which he managed to retain.

We struck camp in several inches of snow, and at 8 a.m. were under way. A little later, after crossing a shoulder of hill, we entered a valley bearing to the north, and after a steady descent came in sight of two chorten at the end of a good-sized plain about 5 miles by 2, with a number of tents, sheep, and yaks. We were now approaching the region of the Nyarong or Chantui nomads, and our Washi guides were uncertain about the reception we should get. The latest news was that there was a band of forty to fifty robbers between us and Kantse. Pereira asked if we could go by any other route so as to miss them, but the reply was "No, there was no other road." We talked it over, and as I could see that his condition was getting serious, I suggested that we should risk going straight on through and not delay, urging that in robber country it is always good to be ahead of the news about one's own caravan. Heavy clouds everywhere looked like more snow, and I felt that with Pereira failing the sooner we could reach some kind of place with four walls and a roof and a good fire for warmth and cooking, the better. We pushed on, and passing a spur of hill entered a valley, which we mounted steadily till we reached a pass called the Chaolung La (12,885 feet); down the other side, past a Nyarong nomad camp of about six tents, where the dogs were very fierce, and on till we camped in a valley at a height of 12,835 feet, the lowest camp we had had for ten days. The days were getting short, and night soon fell. We had just turned in when suddenly it began to blow hard, and I really thought the tent would either be blown away or be torn from the guy ropes. The pegs were driven in, and then it began to rain, and this turned to snow. However, the night passed, and we were off next morning at 7.30 a.m.

From this point on during the next day's journey we crossed five small rivers, but all were flowing westward and were apparently going direct to the Yangtze. The Creitei Nyara was thus the pass over the Hochu–Yangtze divide.

Two of these small rivers flowing westward take origin in small lakes; the first called Nanlung Tso, about 1 mile long by $\frac{3}{4}$ mile wide, was very pretty, and almost like Lake Louise in the Rockies. We crossed a

shoulder of hills called the Tsaimi La, and followed a larger river called the Chugu Chu to the second lake, the Nalu Tso about 2¼ miles long by 1 mile wide. Here we camped; the altitude was only 13,111 feet, so it was more comfortable, and the General seemed distinctly a little better.

The following morning, just as we were breaking camp, a great herd of about one thousand yaks with Nyarong tribesmen went past. They were changing their grazing-ground. A young girl with her hair done in numerous plaits woven into round silver plate-like ornaments, with her brightly coloured high-top boots and sheepskin coat and cap, made a picturesque figure as she rode at the rear of the herd. The General, using the Tibetan boy as interpreter, inquired about the road we were to follow. They gave us good news, for they said that the road was clear of bandits. We followed up the Nalu Chu to its source at the foot of the Yangtze–Hochu divide, and crossed by a pass called the Momu La (14,244 feet). Beyond were great rolling stony slopes gradually descending to the valley of the Ho Chu. In the distance could be seen a high snow-covered range running north-west to south-east, which formed the Hochu–Yalung divide—evidently the continuation of the big range described by Teichman in 1922 as beginning south of Jyekundo and continuing down to the south-east, first as the Mekong–Yangtze and later as the Yangtze–Yalung divide, continuing to the neighbourhood of Tatsienlu and the Yunnan border. Approaching this range from the south, one rocky peak called Nashi or Dumbola—covered with snow, but so perpendicular that the rocky face could be plainly seen—reminded one of the design for the new Liverpool Cathedral, for the peak rose in the centre of other rocky crags like the huge tower that is soon to be seen at Liverpool. The track we were following now gradually descended, and soon we were at our camping-place, 13,790 feet.

We were off at 7.30 the next morning, going steadily down to the valley of the Ho Chu, whose headwaters were formed by the confluence of four small streams, the two principal being the Aseiyindu Chu and the Luni Chu; the moraines were noteworthy for the extraordinary size and number of poised rocks on the crests of the lower hills forming the valley boundaries. After crossing the Ho Chu we entered a small side valley which led round the base of Dumbola, and finally after a very stiff climb we crossed the Hochu–Yalung divide at the pass known as Luma La, which we made to be 15,152 feet. There was deep snow on the pass, and as I was getting the boiling-point Pereira came up. He had ridden the pony nearly all the way, but the last 200 feet of the pass was in such deep snow that he had to get off and do it on foot. He seemed in good spirits, for this was, we were sure, our last high pass, and as he went by me he called out to say how much better he felt that morning. After I had taken some photographs I followed him down the valley, a little east of north, until at last we camped at Rajisumdo, under the shadow

of a great mass of grey rock which towered above us crowned with snow and streaked with yellow.

The next morning we started at 7.45. Pereira seemed a little better, and had some milk and cream cracker biscuits for breakfast—more than he had had for days. I took the precaution to fill a thermos with hot chocolate, for though we hoped to reach Kantse, I wanted to be prepared in case of any delay in crossing the river Yalung. It was a weird valley that we were following: moraines with great landslides, the broken rock showing out through the snow, which was still falling; driving banks of mist rolling up the valley, sometimes obscuring everything, sometimes lifting and revealing great rocky crags towering up above us. At 11.30 the valley opened out, and on the hill opposite was a lamasery called Dorga Gomba, with a peculiar lot of hovels, looking very much like cave dwellings built with mud walls on the side of the hill just below.

At 12.5 I was with the muleteers accompanying the first lot of nine yaks when I was told that Pereira was on the ground. I turned back and found that he had had to get off his pony owing to a sudden attack of severe pain. We were only $3\frac{3}{4}$ miles from Kantse, so I gave orders for the caravan to go on and get across the river Yalung, while the Tibetan boy remained with us. The General was very collapsed, but after fifty minutes he seemed easier, and insisted on going on. With difficulty we got him on to a pony and made our way slowly down to the river. We crossed by the coracle ferry, and then, after fixing up his camp bed and lashing the tent poles on to the sides for carrying, he rested comfortably. The pain became less, and we tried to get passing Tibetans to act as bearers up to the town, only $1\frac{3}{4}$ miles away. It was of no use—not even our Washi yak-drivers, who had been with us from Batang, would help to carry a sick man. As time was getting on and it would soon be dark, I sent the Tibetan boy on ahead to find a house for us to stay, and then, as the General thought he could manage on the pony, we lifted him into the saddle and slowly made our way into the town. At 5.20 we arrived at our destination. His bed was soon ready, and in a few minutes we had him snug with hot-water bottles and every comfort that we could give him; but he was very weak. At a quarter to nine he asked for the light to be put out and he would try to sleep. After thanking me for all my trouble he dozed a little and wandered in his sleep, sometimes talking in Chinese, sometimes in English. At 1 a.m. I helped him to turn on to his side, and he talked to me quite rationally; but after a few minutes there was a sudden change, he became unconscious, and ten minutes later he passed away peacefully in my arms. So died a brave soldier, a remarkable traveller, and a devout Christian.

The Tibetans dispose of their dead either by throwing the body into the river or by putting it out to be eaten by vultures; but the Chinese traders in Kantse had a small plot of ground which they used as a

cemetery. The Chinese official offered me a site for a grave, and so I laid him to rest there, under the shadow of the Great Kantse Lamasery and within sight of the great snow-range forming the Ho chu lung divide. Sixteen Tibetans carried the coffin to the grave.

After Pereira's death I decided to continue the journey as we had planned it, aiming to cross part of the Golok country and reach the Yellow River either along the southern part of the bend or at Sotsong Gomba, at the bend of the river. On making careful inquiries I found that the Goloks directly north of Kantse were at war with the Seta nomads, and also they were those who had made the most stubborn resistance when Ma-Chi, the Muhammadan Chinese general, had subdued their country and forced the rest of the Goloks, including the Golok Queen, into submission. These die-hards had settled down on the southern bank of the bend of the Yellow River and had entirely stopped all traffic from Kantse to the country due north, waylaying and plundering any Chinese who attempted to enter their territory. I therefore decided to adopt our alternative plan, which was to go east for a certain distance and then strike north for the bend of the Yellow River, crossing the eastern end of the Golok country. I was fortunate in securing the services of a Muhammadan trader who had been across this country before, and on October 25 said farewell to Kantse and was once more on the road. It seemed strange to be alone, but my time was fully occupied, for in addition to seeing patients when we stopped for a rest, I also was kept busy making a prismatic compass traverse of the route, getting the altitudes, and trying to keep a photographic record.

I followed the usual route towards Tatsienlu for six days until we reached Dawu. Here I got Ula transport and attempted to strike across to Suching. On leaving Dawu I continued along the Tatsienlu road for 8 miles and then entered a side valley going north-east, at the top of which was a pass to Dungrung La. There were numerous hot springs in this valley, and the stream which we were following disappeared and reappeared in the most extraordinary manner, part of its course being below ground. We camped at the foot of the pass at 13,167 feet. Heavy snow fell during the night, and the next morning the pass was several feet deep. It was a hard struggle crossing. I made the altitude 15,316 feet. Steadily we descended from this, the divide between the Sha Chu or Nya Chu and the Taking rivers. The village where we lodged for the night was only 10,755 feet, so we had come down 5000 feet, and it was much warmer.

The next morning we followed up the Kula River, aiming for the little village of Tan tu. To get there we had to cross the pass called the Wulu La. It was November 3, and as we went up the snow got deeper, and the Tibetan drivers declared that the pass was impossible. One or two of the yaks went down in the deep snow, and it was difficult

CONFLUENCE OF SUMBA-A-LA RIVER AND DING CHU

TWIN PEAKS AT TSANGBUNGA LA

LOOKING SOUTH TO TACHI LA, WASHI COUNTRY

to know where the track was. It was a knife-edge pass, and with a bitter wind and driving snow was one of the most difficult we had to tackle. Every few steps we had to stop and rest ourselves and the animals, but at last the top was reached and with great difficulty the boiling-point obtained. The altitude was 14,770 feet. Then the snow stopped falling, the mists lifted, and I got a bearing with the compass. It was a descent of 4500 feet from the pass until we reached Tan tu, a village of sixty families, where the Tu Sz, or headman, is a woman. I managed to persuade this old lady to let me photograph her, with the two lamas who were her private domestic chaplains.

There was such difficulty in getting transport direct to Suching that I decided to follow the small Tan tu River down to near Rumichango, and then the Taking River up to Suching and Damba. Ula were obtainable along this route, but the road was so narrow and difficult along the side of the river that pack-animals could not be used, and our riding-animals had difficulty along some of the track. At Damba I took a course towards the north-east, crossing the Tan Chao Wu pass at 14,130 feet, and reached the Taking River, here called the Matang River, at Cherh Tsz. The house of the Tu Sz at Cherh Tsz was more like a small fort and typical of several which we saw *en route*. From Cherh Tsz on to Sotsong Gomba our continual difficulty was transport. We had decided to hire animals as we went along, but the difficulty was that the drivers would only go two or three days' journey and then wished to return to their homes. The reason was obvious, that as soon as they got away from their own people they did not feel safe. At Cherh Tsz the representative of the Tu Sz came and wanted me to go *viâ* Somo and Matang. I asked the reason, and found that there was a feud between two of the lamaseries on our route, the one two days, and the other four days north, and they thought we would not get through.

I put on my severest look and said, "Well, if we alter our route I will make inquiries as we go along, and if I find it was not necessary when I get through I shall be very annoyed," and I tried to look as if my annoyance were a most awful thing to reckon with. After further discussion they gave way, and we started thirty-six hours later. My endeavour was to keep as far west as possible, and we therefore followed the Matang river westward for about 4 miles, and then struck north up the Talung Chao valley until we crossed the divide between the Talung and the Runga rivers by the pass called the Choh Tseh La (13,676 feet). From the top of this pass, far away to the north-west on a bearing of 120°, a high mountain peak could be seen standing out in marked contrast to the rest of the mountain range of which it was the highest point. I came to the conclusion that this was Mount Yabainkara, in the Bayan-tukmu range.

The track now followed the hillside until after a descent of nearly 3000 feet Tatsang Gomba was reached. This was a lamasery with

about two hundred lamas. They had never seen a foreigner before, and were very suspicious. At first we were told that it was quite easy to get yaks for the next two or three days, but after I had paid off the ones which had come from Cherh Tsz the acting headman, who is of course in the power of the lamas, became very difficult, and we could get no one who would provide us with pack-animals, while the only shelter we could get was a shed where refuse was dumped. It was a most awkward position: our retreat was cut off, and we could not go forward. However, by tact and courtesy and by the gift of one or two small presents I managed to gain the friendship of the Living Buddha of the lamasery, and he gave me a room in his house to stay in, but would not help us with transport. Then a happy idea occurred to me. I showed him some photographs and offered to take his picture. He consented on condition that it was done on the flat roof of the house where none of the other lamas could see. The photograph was taken, a print hurried through and duly presented, and this turned the scale. Our host personally took up the matter of transport, secured yaks for us, and came to see us off on our journey. Moreover, he sent his own personal servant with us to help us when, after two days, we must again change animals. The buildings of this lamasery were different from anything I had seen before. In the walls were layers of reeds laid crosswise with the ends cut off evenly, giving the appearance of a stucco. Pereira described this in the *Geographical Journal* of March 1911 as occurring in the Labrang monastery, but he thought it was unique. The roofs are of slate of irregular shape, but give the appearance of a slate roof in England.

Leaving Tatsang Gomba, we stayed overnight at a little village called K'a Ka Koh. The houses were most peculiar. They were mostly five storeys high and had the appearance of a tower, the two upper storeys projecting with a kind of veranda closed in with twisted reeds. The people at first barricaded themselves in their houses, but as soon as they knew we were friendly with the Living Buddha of Tatsang Gomba they took us in.

The next day we crossed the pass called the Kunchien La (13,298 feet), which is part of the divide between the Yangtze and the Yellow River. Although this pass was lower than several we had negotiated before, it was not easy, for it was November 24, and driving snow made it difficult to see the track. I tried to get the boiling-point, but had to descend 300 feet before I could get some slight protection for the hypsometer, and then it took half an hour to get a steady reading. When we had descended a little farther and this downfall of snow had ceased and the cloud lifted, a glorious view burst upon us: a great valley running almost due north as far as the eye could see, the upper slopes entirely, the lower partially, covered with snow.

This was the source of the Peh Ho or White River, which we followed for that and the following two days. The people here were apparently

a mixture of Goloks and Ngaba, the Golok country being more to the west, the Ngaba more to the east, of the White River. A large proportion of the people were nomads with great yak-hair tents, but at intervals we came to groups of mud-walled hovels which might by a stretch of imagination be called villages. These were associated with large stockades where the yaks and ponies could be herded, so that cattle raising seemed to be the one occupation of the people. They spoke a fairly pure Tibetan according to our Tibetan boy, who was readily understood. Fuel is almost entirely dried yak-dung.

On the first day and a half, following the White River, which was full of drifting ice, we found its course was almost due north; but on the third day, after being augmented by numerous small streams the river was of considerable size, and its course was now almost exactly north-east. In places the valley widened out into grassland as at Dorma, where the plain was about 5 miles long by 3 miles broad, and here I counted seven camps or mud-hut villages, and there was splendid grazing for yaks, sheep, and ponies.

At the end of our two and a half days by the White River we had again to negotiate for transport, but as we were told that the lower reaches of the White River were infested with robbers, we took an alternative route more to the westward, and therefore more into the Golok country. Leaving the White River, we struck up a side valley to the Runglung La (12,772 feet).

We were now in the eastern part of the Golok country, and our new yak-drivers evidently knew their countrymen fairly well, for one of them was invariably about half a mile ahead scouting. We could see his mounted figure making its way up a pass, and hesitate at the top while he dismounted and carefully peered over the top before he beckoned us on. On crossing the Runglung La a solitary horseman appeared on the hillside and then disappeared. A little later three armed mounted men entered the valley down which we were making our way and came rapidly towards us. Our scout, who was quite close to us at the time, shouted to them to stop and say who they were, but they took no notice and came rapidly on. We had only one rifle, a shot gun, and two revolvers in our party, but we got ready for emergencies. However, as they approached our scout found they were friendly, and they gave us information that a band of robbers were just beyond the next bend of the valley. We took counsel and turned up a side ravine, where we concealed ourselves in the hope that they would move on. This apparently happened, and the next day when we continued our journey we passed the place of the robbers' bivouac, but were not molested.

Mile after mile of low hills was the characteristic of this country; no trees, but excellent pasture in the valleys. We travelled all day without seeing a sign of life—no yaks, no sheep, no tents. Suddenly, on turning the spur of a hill there was the dead body of a man put out

for the vultures. It gave one a curious feeling that probably we were being watched all the time. That evening we had just camped in a lonely spot by a small river called the Gia Chu, which our guides told me flows into the Yellow River direct, when two mounted men came over the crest of the hill, looked at us, and, when I sent the Tibetan boy to investigate, disappeared again. The same thing happened again with a single horseman, who came, looked, and disappeared. We posted a sentry that night, but although nothing happened our guides urged us to be on the move next morning the moment we could see, and so we struck our camp in the dark and were a mile or two on our way by daybreak. Another day's journey brought us to the Lohtsz Nyara (a pass of 11,904 feet), and after crossing this we camped only a day's journey from Sotsong Gomba. On two other occasions we had an alarm of attack, but we displayed the fact that we were armed and were not molested.

These nomad people—the Goloks and Ngaba—all carry something for protection. If possible they have a gun, which is always provided with the double-pronged rest hinging about halfway along the barrel; and the saying is that "a Golok never wastes a shot." Some have spears about 20 feet long with a sharp iron point; they often use the butt end for driving their yaks.

We were now nearing the lower reaches of the White River, and crossed a great plain from 15 to 20 miles in length and about 6 miles wide, bounded on the west by a range of mountains, the highest peak of which was called Ar Chia. We reached the left bank of the White River about 14 miles from Sotsong Gomba, and 10 miles further on the great Yellow River itself burst into view. It was November 30, and floes of drift ice were coming down both rivers. We forded the White River with difficulty, and then followed the right bank to where it joins the Yellow River. Two miles beyond the confluence, on the banks of the Yellow River, is Sotsong Gomba. This consists only of the rather miserable buildings of the lamasery. The lamas were very anti-foreign, and the only place that we could get as a shelter was a kind of underground cowshed. Nevertheless, the fact that we had got safely through from the south to the bend of the Yellow River—a spot which had only been visited before by about three Europeans—was a source of satisfaction.

There are numerous sharp bends in the Yellow River to the south-west of Sotsong Gomba, but after the White River joins it the river for the next 5 miles does not take such a sinuous course. The lamas seemed so hostile that I was glad when we got away. I had intended to make my way along the northern arm of the bend of the Yellow River till I reached a little place called Ni Ma, then cross the river and attempt to reach Hwong Mo Ru, the place where the chief Golok camp is generally situated, but at Sotsong Gomba we found that for several reasons this

DESCENDING FROM RAJISUMDO CAMP, WASHI PLATEAU

SOURCE OF YALUNG, MONIA WASHI COUNTRY

KANTSE

TATSANG GOMBA, NORTH OF CHOHTSEH LA

HOUSES IN K'A KA KOH VALLEY

GOLOK COUNTRY FROM SOURCE OF WHITE RIVER

was impossible. We heard that there was civil war in this part of the Golok country, and the Queen of the Goloks had taken refuge in flight. All communication was interrupted, and even the Muhammadan traders, who usually have free access, taking in tea and bringing back wool, did not dare to venture into this region. We were now into December, and the cold was becoming intense. The altitude of Sotsong Gomba was 11,090 feet, and Hwong Mo Ru would be much higher. Our stores were practically exhausted, and we were living largely on what we could get as we went along. I therefore decided to make my way to old Taochow, and thence to Lanchow, making a détour in order to call at Labrang Monastery *en route*.

From Sotsong Gomba for the first 17¾ miles the track gradually leaves the Yellow River and going due north passes through the large grassy plain which borders the Yellow River, and at the end crosses some low hills which hide from view the Tibetan village of Tawa and its associated lamasery Shami Gomba. I stayed at the Shami Gomba, which as far as I could find out had never been visited before by a foreigner, and had a most uncomfortable time with the lamas. By the time we reached Raa Gomba, which stands on the Black River, the river was frozen over, and we crossed on the ice.

From Raa Gomba, going 30° east of north, we crossed a plateau of grassland about 11 miles wide which sends its waters westward by the Tan Chu into the Black River and so into the Yellow River, and then passed through the mountain range on the north by a low pass only about 500 feet above the plateau. This pass was on the west side of a huge rocky crag having a marked resemblance to a lion's head, visible from any part of the plateau, and so a splendid landmark. I found that the mountain range forms the Yellow River–Yangtze divide, for the small stream on the other side of this low pass flowed eastward and was a tributary of the Pai Hsui, eventually going to the Kia Ling, which joins the Yangtze at Chung King.

Konserh Nien Ba is the name of the next lamasery, which stands on a small river. To reach old Taochow we had again to cross into the Yellow River watershed, and the divide in this case is the mountain range known as the Min Shan. As these mountains are supposed to be infested with robbers, we were advised to ask the lamasery to provide us with four lamas to travel with us the next two days, for it was said the robbers would not dare to attack a caravan having lamas; they would be too afraid of their curse. We therefore hired four of these scoundrels to join our caravan, and they kept me awake most of the night by sitting round my tent and howling to each other, the idea being that robbers in the vicinity would know that some one was on the look-out. However they piloted us through the Min Shan range, and got us up at 3 a.m. on the second day in order that we might reach the top of the pass by dawn—before, as they said, the robbers had begun to stir. The pass called

Hohkeh La had three crests; it was 12,300 feet high, and certainly was an ideal spot for robbers.

We crept up to the top of the pass as silently as possible with just the faintest glimmer of moonlight; then rapidly the twilight before the dawn came, and as we reached the top the sun began to light the highest peaks. We were soon hurrying down the other side of the pass, and the danger was over. At parting I presented these four lamas with two empty biscuit tins, and they went back delighted with their present.

Our track now followed the Cheh-Ba-Ku river till it joined the Tao. There was plenty of game—pheasant, partridge and wild duck—in this part of our journey, and after crossing the Tao to its northern or left bank, a few miles brought me to old Taochow on December 9, where it was good to meet the missionaries and again hear good King's English.

The road on from Taochow to Lanchow has been traversed so often that there is no need to describe it. I branched off to visit the great monastery at Labrang, where there are over 4000 lamas. When General Pereira visited Labrang over ten years ago it was impossible to gain access to any of the buildings, but on this occasion the father of the Living Buddha, who is acting as regent, received me quite graciously, and sent one of the under lamas to take me through the lamasery. The great chanting hall with its rows of cushions on which the lamas sit to chant the sacred books was a most impressive place; there were alcoves at the side, each with an image with the usual row of butter lamps and cups for wine, and in front of each a row of white-looking pyramids which I discovered were made of snow. I took a flashlight picture of one of the alcoves, but the old lama did not like it, and politely requested me not to use that bright light again. I managed however to secure time-exposure photographs of the private chapel of the Living Buddha, where the little fellow is brought to recite the sacred books. Here again were the snow offerings. It was so cold at Labrang that these have to be renewed only every three or four days. On the hillside behind the lamasery were a number of whitewashed huts, which I was told were "cells for the little lamas who do not learn their lessons."

From Kantse, where General Pereira died, to Lanchow I had made a prismatic compass traverse of the route all the way, but having arrived at Lanchow I decided to follow the Yellow River through Ningsia and Inner Mongolia to Paotow—the terminus of the Peking–Suiyuan Railway, and then get the train to Peking. This route is so well known and has been so often mapped that I decided not to continue the mapping. With the help of Mr. Andrew of Lanchow I obtained carts to take me through, and on December 27 started on the final section of the route.

All went well until three hours from Paotow, practically the end of this rather long journey; but there two hundred and fifty bandits came along and took me prisoner. As a captive with the brigands we crossed the Yellow River on the ice. The incessant moving about, sometimes

by day, sometimes by night, the intense cold—20° below zero—the loss of camp equipment, blankets, etc., the difficulty about food, made this an experience that I am not anxious to repeat. We spent eight days in the neighbourhood of the Ordos desert, until, with the help of the Chinese officials, I managed to escape, and travelling all night once more crossed the Yellow River on the ice and reached safety.

I was fortunate in being able to save all our maps and important records, which I kept on my person. Photographic records also I saved by posting them to Shanghai from various places *en route*, but all else went: camp equipment, geographical and surgical instruments, etc., were all lost.

There were many difficult experiences on this long and somewhat strenuous journey, but the saddest was the loss of that brave and adventurous explorer, Brig.-General George Pereira, of whom it may truly be said, "He feared man so little because he feared God so much."

Before the paper the PRESIDENT (Dr. D. G. HOGARTH) said: I have to introduce to you Dr. Gordon Thompson, who has been, I believe, for nearly thirty years a medical missionary in China, and who joined General Pereira on his last journey. Those who have attended the meetings here and who have kept abreast of the progress of exploration, will well remember General Pereira's remarkable tramp afoot from the capital of China to the capital of Tibet, from Peking to Lhasa. It was on a subsequent journey that Dr. Gordon Thompson joined forces with General Pereira; and together they undertook a most remarkable journey into the practically unknown borderland between Tibet and China which Dr. Gordon Thompson will describe to you to-night. The journey entailed the greatest hardships, much greater, I fancy, than you will realise from the account that Dr. Gordon Thompson will give. The journey also entailed a tragedy; for before it was over General Pereira was dead, and Dr. Gordon Thompson had to continue alone. It ended in his capture by brigands and his being kept under extraordinary circumstances for eight days in their hands until he had the good fortune, by a series of events which one thinks could only possibly happen in the East, to make his escape. Moreover, the journey was one requiring the utmost resolution and fortitude, and it is a very great tribute, to the explorer who will speak to you to-night, that he continued that journey and that he carried it through. He has a long story to tell you, and I will not stand between you and him but call upon him to give the account of his remarkable experiences.

Dr. Gordon Thompson then read the paper printed above.

The PRESIDENT: I am afraid we are rather unfortunate to-night in not having any one to add anything on the subject. That, of course, is the penalty of travel into countries so unknown as that to which General Pereira and Dr. Gordon Thompson went. I had hoped that Lord Ronaldshay would have been able to say something in general, and Sir Francis Younghusband in particular, about Tibet; but as they live in the country, they have both been obliged to leave to catch trains which, apparently, have no successors until about 2 a.m. Moreover, had General Abbot-Anderson been present, I gather he would have said something. We should have asked also Mr. Archibald

Rose, who is well known in connection with Chinese matters, and Mr. Weatherbe, who has been mentioned by the lecturer as having been taken by brigands, to speak; but neither of them was able to be present. So I must just issue a general invitation. Is there any one present who would like to say anything about the Chinese or Tibetan country, or to ask a question which the lecturer may answer? There seems to be no one who wishes to speak, and therefore I can only, in your name, convey our very cordial thanks to Dr. Gordon Thompson, not only for a most interesting lecture, but for certainly some of the very best photographic views that I have ever seen in this hall or anywhere else. It certainly has been an amazing piece of good management, supplemented, I imagine, by a great deal of good luck, that, considering what happened to Dr. Gordon Thompson in the end, has enabled us to see those photographs. It appears, as he told you, that at every point at which there was anything like a post—certainly not anything like the post we know—he sent off such films as he had already exposed, and by the greatest good luck every single roll came to hand except two which he had taken just before he was captured at the end of his journey. The result is that we have been able to see these astonishing photographs, so extraordinary in their clearness, with perhaps exception of the panoramic photographs which always lack a little definition.

I think the most conspicuous feature of the lecture was the author's extreme modesty and reticence. One would not ask him for a moment to revive the most bitter of his experiences, the experience to which he so feelingly referred, and which has made this meeting almost into a Pereira Memorial Meeting; but I am a little disappointed that he should not have told us more about that very remarkable experience of his towards the end of his journey, namely, his capture by brigands and his sojourn with them. He has told me in private a little about it, enough to make me want to hear a great deal more. It certainly was one of the very oddest experiences, with all kinds of details almost like comic opera but at the same time with an element of possible tragedy; such an experience, in fact, as one could not imagine happening anywhere except in China. As no one has spoken on the subject of the lecture, perhaps the lecturer will tell us a little more about that strange experience. If he does, he will only add to the gratitude which is already felt most keenly by all present. I am sure we are most grateful to him for having come through, and, in spite of the very modest and reticent way in which he has told his story, we are all most appreciative of the courage and endurance which carried him on to the end. In conveying to him your thanks, which you have already expressed most cordially by acclamation, I will ask Dr. Gordon Thompson if he can tell us just a few more details rather of the less formal, less purely geographical kind.

Dr. GORDON THOMPSON: The brigands came along only three hours from the end, one might say, of the journey. In fact, we were within 10 miles of Paotow, the terminus of the Peking–Suiyuan Railway, when we were ambushed by a mixed company of about two hundred and fifty Chinese and Mongol bandits. I was travelling at the time in a cart. There were two things which made the experience most uncomfortable: firstly, the intense cold, the temperature being 20 degrees below zero; and, secondly, the constant moving about. We would arrive at a place, and I as a prisoner would be thrust into a farmhouse or some building and sentries placed outside the door and on the flat roof. We would not know how long we were to stay; sometimes it would be only a few minutes, sometimes a few hours. Occasionally we travelled

all night, whilst sometimes, by changing horses, we travelled all day and all night, so that when we stopped one would not know whether to settle down and try and get sleep or whether it was not worth while because we might be moving on again almost at once.

The great difficulty when the brigands took me prisoner was to get and keep in touch with the outside world. The journey had already lasted over six months, and although I had sent word through to Tatsienlu and so to Peking of Pereira's death, nobody knew by which route I was making for Peking, or expected us in that neighbourhood. When my Chinese servant came and told me that everything was smashed up and all our things were looted, a happy idea occurred to me. I decided to go on a kind of "hunger strike," and when the bandits came and offered me Chinese food, I shook my head and said, "I am a foreigner. You Chinese eat Chinese food. We foreigners eat foreign food. I must have foreign food." They were rather nonplussed, and asked what they could do. I said, "If you don't want me to die, the best thing you can do is to let me send a letter into the town" (three hours' journey away) "and ask for food." They kept me waiting all night, and then they consented. I called the Chinese boy whom I had with me—the only servant left—and having first ascertained that none of the brigands understood English, gave him a letter. In the letter, after asking for some food, I described who I was and how I came to be taken. I requested that Peking should be informed, and after giving as exactly as possible our position, urged the Chinese authorities to attack the robbers and look out for me if I attempted to escape. The boy was to take the letter to the nearest town, and as he was leaving I whispered to him not to come back, because I thought if I got the chance to escape I would not like to leave the boy in the brigands' hands. The boy was very pleased with his instructions; he obeyed them exactly, for he went away and did not return. Then I had to keep myself going with food, because as I had once started I had to keep it up. I managed to subsist on scraps picked up unknown to my captors. We came to one farmhouse, and when I went into the courtyard and stumbled over what I thought was a pile of stones, I found they were actually frozen potatoes. I pocketed about six and went to the room in which I had been put as prisoner. There was a pan of tea boiling on the fire, and when the brigands were not looking, I dropped the six potatoes into the boiling tea. About a quarter of an hour afterwards I managed, when again they were not looking, to get those potatoes out, and then went and lay down. I covered my head up as if going to sleep, and made my supper of boiled potatoes! So it went on, and each day I requested that a messenger be sent to ask for food, and, strange to say, several messengers which the bandits themselves sent out with my letters did not return. Thus I was able to keep the authorities in full possession of all our movements and give them much valuable information, while to the bandits I pretended to be getting weaker and urged them to open negotiations.

We reached one farmhouse, and by this time they were getting rather desperate at my apparently weak condition, so they came and asked me whether I liked pigeon. I replied, "Yes, if it is cooked in foreign style." Thereupon they called my cart-driver and handed to him a pigeon and said, "You must know something about the foreigner because you have been driving his cart for a fortnight or more; see what you can do." He plucked the pigeon, and then came into the place where I was prisoner carrying the pigeon and a pan. He chopped the bird up and put it with potatoes and vegetables into the pan on the fire, and there was very soon a most delicious smell of pigeon stew. I

rather longed for some of that stew, so I asked if he had put any salt in it. When he said he had not, I told him to go and see if he could get any. The brigands were out of the room, and whilst the carter was also away I seized a handful of the stew and put it into my pocket. When he had put the salt in I suggested some sugar might improve it, and whilst he was getting that I pocketed another handful of stew. A quarter of an hour later he said it was ready, but after tasting it I refused to have any more, saying, "You don't know how to cook European food; you had better put it down." He did so, and went out. I could not resist that stew, for I was really getting very hungry, and having disposed of it I put the bowl on the floor. The usual Chinese dog came in and sniffed round, and when the carter returned the dog was eating up the bones. I said, "Anyhow, the dog likes it." I heard the carter go to the brigands and say that he certainly could not prepare European food properly, for I had given the stew to the dog. He did not know I had had a very good supper.

The matter ended in this way. My letters had been received, and first a Catholic priest came to the bandit camp. He had been promised safe conduct by the brigands if he would bring me food. He tried to negotiate, but he had had to leave because another Catholic priest was in captivity only 8 miles away. That poor man had an awful time. He was a captive for about eight weeks, and when eventually they got him away he only lived two months, dying as the result of his experiences.

Then the Chinese sent an agent over, and he tried to bargain with the bandits for my release. You may be interested to know, as the President has asked for more personal details, what they wanted in the way of ransom. They demanded $10,000, 150 rifles, 50 automatic pistols, 4 machine-guns, and a whole district to control! I managed afterwards to get the paper on which these demands were written, and I brought it home with me and presented it to my wife, saying, "There, my dear, that's the value of your husband." The Government agent found that he could not make any impression on the bandits, and that it was impossible to argue with them or beat them down. He came to me and said that he must leave as he could not come to terms, and once again one expected to be on the move. But that night, at half-past nine, I was expecting the guards to come in and say they were off on the move, instead of which two crept in and said they were going to help me to get away. I was somewhat suspicious, because I saw behind them the Government agent, whom the Catholic priest had warned me was really a bandit. Therefore at first I refused to go. They went out and talked it over and got very excited outside. Finally, they came in with a rush and got hold of me, and there was no question whether I would go or not. One man held me by the wrist, and with his revolver in the other hand we started out and went, in the darkness of the night, over the frozen country for 2 miles until we came to a farmhouse. They knocked, and we went in. Inside the farmhouse was very brilliantly lighted. There I found the rest of my guards and once again the Government agent. I began to think they were really helping me to get away. I told them that if they were acting true I would help all I could. Ponies were soon ready, and we trekked away to the north, crossed the Yellow River on the ice, which was about 3 feet thick, reached a village at 3 o'clock, rested until daylight, and then mounted our ponies again, striking north as fast as we could go. Finally, at nine o'clock we reached a village where there were 250 troops waiting to take us into safety.

When we reached the town I was received by the son of the Governor and

the Chief of the Staff, who had planned how they would help me. The latter was a Christian man, and he took me aside into a little room, where he knelt down and thanked God for my escape. It was a most touching experience, and when I could find words I said to him, "It is an extraordinary thing that you have done. Why did you send a man who was a bandit to try and help me to get away?" His reply made everything quite clear. He said, "Nobody but a bandit would dare to go into the bandit camp; we had to employ a bandit for the purpose, and his instructions were that when he got into touch with the bandits he should bargain with them, and if they would not come down in their terms, then he was to give some money to the guards and ask them to help." That was what had happened, and the guards were ready to help me to escape. I was very thankful that the time in the hands of the brigands was not longer, and I must say this before you all: that I believe that God Himself overruled things and delivered me out of the hands of the bandits.

The PRESIDENT: Well, ladies and gentlemen, we have heard a good deal in the course of the last two or three years about people being taken by Chinese bandits, but I do not think any of us have ever listened to such a story at first hand as that which Dr. Gordon Thompson has just told. It only makes us feel more warmly towards him, if possible, than we felt before.

THE ORIGIN OF THE TUAREG

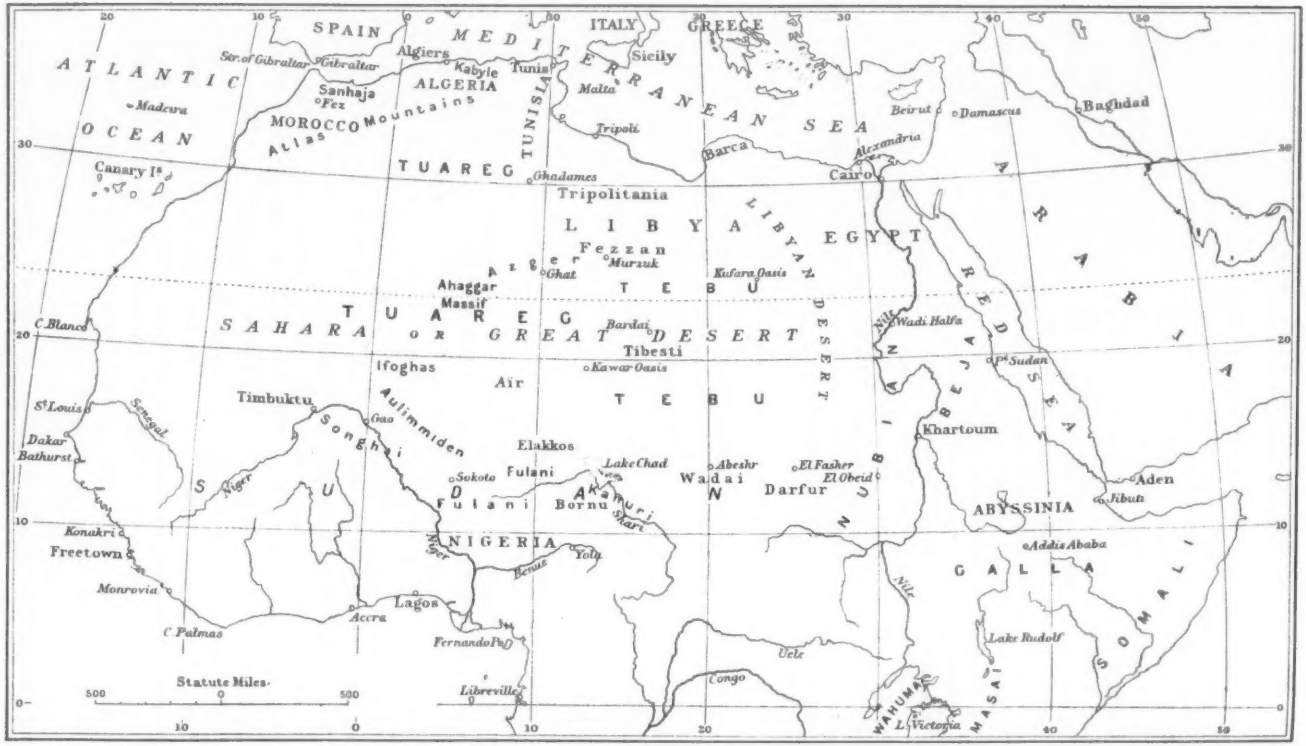
Francis Rodd

Read at the Afternoon Meeting of the Society, 16 *November* 1925.

BEFORE discussing the subject of this paper—The Origin of the Tuareg—it will be advisable to describe the people themselves. They are so little known in Europe, and especially in England, that some definitions are necessary.

The indigenous peoples of North Africa (one must not go too far back and talk about aborigines) are usually called Berbers. But the description is misleading, as it conjures up many popular fallacies and misconceptions. I therefore propose to substitute for this name the geographical term Libyans, which Herodotus first introduced, in speaking of the population of North Africa, by which is meant the whole area west of the Nile basin and north of Equatoria.

Among these Libyans there are certain nomads who inhabit the Sahara or inner parts of North Africa. European travellers first called them the tribe of the Tuareg, or Tawarek, adopting the Arab name which they heard in current use. Although described as a Libyan tribe, these nomads seemed nevertheless to differ from the sedentary inhabitants of the coastal districts along the Mediterranean. At least they possessed some quite remarkable peculiarities of their own. As the Sahara became better known, Tuareg were reported in places as far apart as in the Fezzan or along the Niger. Their striking individual characteristics, their wide extension and the comparatively large numbers of their complex tribal organization, were slowly realized in the course



Sketch-map to illustrate Mr. Francis Rodd's paper on the origin of the Tuareg.

of time. Barth, in about 1850, and his companion Richardson two or three years before, were among the first to suggest to Europe that this was no tribe but a race or people of many clans. Investigation has since shown that this people is one of the oldest in North Africa. Not all the Libyan nomads are Tuareg, though the greater number belong to this race or can probably be traced to a common origin. The many Arab nomads in North Africa are, of course, not included in the term "Libyans," among whom nomadism and sedentarism are not the result of circumstances, but of predilection and perhaps of difference in racial composition.

I will skip the accounts given of the Tuareg by the nineteenth-century explorers, for with the exception of the works of Duveyrier and Barth there was little really authoritative writing on the subject. Even to-day the literature is very small, though their intractable nature and early successes against the French in resisting European penetration of the Sahara have given rise to many fantastic stories about them. I will endeavour to summarize certain of the outstanding peculiarities which justify the assumption that a study of their origins is concerned with a race rather than with a section of another people or of such other peoples as may have gone to constitute the remainder of the Libyans. These characteristics are possessed by all the Tuareg irrespective of their habitat or tribal divisions. Other peoples may have some of the characteristics, but no one other people or race, so far as I am aware, can claim them all or even the majority.

The Tuareg occupy a large area of the land surface of the world. They range in various groups or confederations of tribes all over the Central Sahara south of the permanently inhabited districts of Algeria, Tunisia, and Tripolitania and north of the Sudan, to use this name in its proper Arabic sense to signify the northern fringe of Equatoria from the Upper Niger to the Nile. They extend in the east from the Murzuk–Kawar–Chad caravan road to some distance west of the roads from the Mediterranean to Timbuktu, but on this side their influence and purity of race have declined considerably. The areas of their various divisions are contiguous: in their own districts the population is principally or exclusively Tuareg. The Fezzan is perhaps an exception, for in that country circumstances have brought about a great mingling of many races, and conditions are very peculiar. Nevertheless even here the Tuareg dominate the countryside though they have little say in the sedentary oases and townships. They control the three central caravan roads from the Mediterranean to Central Africa, namely the one which runs from the Fezzan to Lake Chad, the one to Nigeria, as we should now say, from Ghadames and Ghat by the Aïr Mountains, and the several alternative tracks from Southern Algeria to the Niger at Timbuktu or at Gao. In the Niger bend alone have the Tuareg penetrated far into the southland country, which is primarily negroid; but here, as else-

Sketch-map to illustrate Mr. Francis Rodd's paper on the origin of the Tuareg.

where, where another race has come into contact with them they are masters, or were so until Europeans came to disturb the normal state of things. Nowhere are the Tuareg slaves or under-dogs.

In former times the Tuareg extended a little, perhaps a good deal, further east: nowadays the Tebu have encroached towards Kawar. The Tuareg also ruled in Bornu, south-west of Lake Chad. West of the roads from Algeria to Timbuktu the Tuareg held all the land as far as the Atlantic until the Moors came down to the Sudan in the late sixteenth century A.D. and conquered the Empire of Songhay on the Niger. The debased descendants of the Tuareg can still be traced in the west, but they seem to have disappeared from the lands where they once lived south of the Atlas.

The Tuareg are nomads. They live principally by means of, and on, camels. Thus their national sport and main source of livelihood of their nobles was naturally raiding, until the French in a large measure put a stop to the game. The Tuareg are also very mendacious, and as their tactics in war are essentially those of surprise, they have never been beloved of other men. They have earned a reputation for treachery, which their friends deny: they would not allow that success in desert warfare deserved so hard a name; moreover, they have fine sense of honour according to their own standards, which are certainly sincere. They fight with swords and lances, and rifles when they can get them; but they do not resort to murder or, in their own eyes, such insidious weapons as bows and arrows or blowpipes.

In their society they recognize three estates of man. There are slaves, serfs, and nobles. The slaves are of two sorts, the "ikelan," a word corresponding to "niggers," and "irawellan," or domestic slaves and household servants. The serfs are called "imghad," and the nobles "imajeghan" (both these words are in the Aïr dialectical form). Their language is called "Temajegh," which is a feminine form of "imajegh." In various dialects these words assume the forms "Tamahek" "Temasheq," "Temasegh," "Imohagh," "Imohaq," "Amazigh," "Imasigh," etc., etc.

The status of serfs or "imghad" is curious. They are grouped under their own chiefs in tribal divisions which are bound to certain noble tribes, whose overlordship they cannot alter. The "imghad" do not, like slaves, belong individually to particular persons. They may in fact themselves own slaves. The relationship of "imghad" and "imajeghan" is more close than that of vassals and suzerains, but less intimate than between slaves and masters. For lack of a better translation of "imghad" I have used "serfs," but the allegiance is not that of serfs in the Middle Ages, nor is it in any way territorial; yet it is more than that of yeomen to their knights. The nobles use their "imghad" tribes to pasture and exploit their tribe's camels, and in such cases a collective responsibility is laid on the servile clan to make good losses, but individual

serfs cannot be held personally responsible, nor can they be made to do menial work, such as tilling the ground. They assist their noble tribe in war as a matter of course, and receive protection. They are the clients of the nobles in disputes. Jurisdiction is possessed by the latter, at least nominally, over them, but through the chief of the servile tribe. They may have certain tributes to pay. A proportion of their marriage fees or dowries is usually taken by the noble tribe.

The fiction governing the estate of the "imghad" in customary law is that a wholesale capture or subjugation in war took place, and was followed by collective manumission upon specified conditions. The origin of many of the "imghad" tribes in Aïr dates from the terms which were arranged when the first Tuareg invaded the country and seized it from its negroid inhabitants, many of whom stayed on and became an inferior caste. The system of nobles and serfs is very old. In the first instance, it probably arose out of political circumstances which precluded the extermination of a rival people and necessitated some form of absorption. However much they may dislike them, the "imghad" universally regard themselves as much part of the Tuareg race as the nobles. Slaves, on the other hand, being chattels are not regarded either by the nobles or by the serfs as being Tuareg at all, any more than are their camels or goats or donkeys.

The most striking outward peculiarity of the Tuareg, which distinguishes them from all other races in the world, is that the men go about veiled, in such a manner that nothing is visible of their faces but the eyes, which peer through a narrow slit between the upper and lower folds of the long bandage-like veil. Their women never veil themselves at all. If they draw a fold of stuff half over their faces it is out of coquetry or in token of respect, but not to conceal their charms. The veil, or "tagilmus," of the men is worn by noble and servile tribes alike. In certain districts the latter wear a white veil and the former a dark indigo or black one, a practice which has given rise to the terms Black and White Tuareg; it is however not a universal habit and never refers to the complexion of the people. The slaves of the Tuareg do not wear the veil. The Tuareg have no name for the whole of their race to include both servile and noble tribes in whatsoever groups they may be organized, and for lack of a better term often call themselves the Kel Tagilmus, or People of the Veil. The early Arabic writers, such as Ibn Khaldun and Leo Africanus, also refer to them by this characteristic, as the Muleththemin, or Veiled Ones, a participial form of noun derived from "Litham," the Arabic for the "Tagilmus," or "Veil."

The apparent absence of any name for the race in their own language has its parallels among other people. It has been suggested that "Imajegh," or at least the MZGh root contained in this word, was a national name. One of the grounds for this assertion is that the root recurs in certain tribal or racial names transmitted to us by the classical

authors, such as the Macæ, Mazices, Maxyes, and even perhaps the Amazons. Moreover it appears that there are tribes in the Maghreb which seem to use the word "Amazigh" in a national or quasi-national sense. One learned German author has even gone so far as to speak of the "Mazigh Völker." These occurrences are interesting, for in the case of the Mazices, etc., of the classics, there certainly are reasonable grounds for supposing that they were in effect Tuareg, or ancestors of the present Tuareg. Nevertheless the latter do not use the word "imajegh" in a national sense at all, and I doubt whether in the first instance the root MZGh had this sense even among non-Tuareg tribes. The word "imajegh" and its derivatives, according to the greatest modern authority on the language, Father de Foucauld, come from the verbal root "Ahegh," signifying "to raid," or by an extension of the meaning "to be free." Barth long since advanced the view that it was not their national name. "Imajegh" is used by the Tuareg exclusively as a caste name to indicate the nobles. The adoption of the term by one non-Tuareg tribe as a caste distinction of a flattering nature—for it is also used by the Tuareg in referring to the aristocracy among the Arabs and the upper classes among Europeans with whom they have come into contact—might easily have led to its appropriation by another race, speaking or having learnt the same language, as a national name. Such a process is known to occur sometimes. It is always well to remember that the word "Tuareg," which is a plural form of Tarqi or Tarki, is the name given by the Arabs to the race and adopted from them by Europeans. It is not used at all by the Tuareg, who consider it abusive on account of some of the many rather fanciful etymologies which learned writers even early in history have suggested. Originally it was probably the proper name of a section of Tuareg race, the first one with which travellers came into contact; but it has been interpreted as signifying that the Tuareg were apostates from Islam.

The most important of all their characteristics is that among the Tuareg women are as free, if not freer, than in England. They choose their own husbands, and they are the repositories of learning and the art of poetry. They teach the children to write and to read, and the lore of their people. They have men friends who are not relations, and they give evening parties to recite poetical compositions. They may own property even after marriage, and their husbands have no control over it; they may bequeath it as they choose. Their influence is very great. The men are monogamous, though under the Moslem code they are allowed four wives. Their social system and government display many interesting matriarchal features which good Moslems should have shrunk from maintaining; but then they are not good Moslems. Caste and authority are inherited through the mothers, and noble women may never marry a serf.

The true Tuareg all speak the same language, the dialectical forms of which do not vary very greatly. Their tongue is one of the group known as Berber—the only connection in which I would allow this word, restricting its use, on the analogy of the practice which has developed concerning the name Aryan, to a purely linguistic sense. The Tuareg are not of course singular in speaking a Berber language. All the pre-Arab peoples of North Africa, some of them, as I think, of demonstrably different ethnic stocks, use one or other members of the same family of languages. The Tuareg, however, are peculiar in writing a script which is nowadays not used anywhere else in the world, or by any other people. The script is called T'ifinagh, a word which simply means "signs," and is also applied to Arabic or Latin characters. Its origin cannot be discussed here; it must suffice to say that some of the characters have analogies in early Libyan script such as was found on the Dugga inscription now in the British Museum, while others have a more directly Punic origin. The Tuareg alphabet will, I think, eventually probably prove to be derived from at least two sources, one of which, perhaps, will be very interesting. It is fairly clear to me that the Tuareg were themselves responsible for its evolution along certain lines to its present form. But that a pastoral people of confirmed nomadic habits should have maintained in current use an individual script of this nature when the circumstances of wandering life mitigate against the use of writing at all and render this attainment almost superfluous, is one, but only one, of the many indications that the Tuareg were once possessed of a far higher degree of civilization than they now display. The origin of their culture is one of the most interesting problems in North Africa, for not all of it seems derivable from Egypt. Its elucidation may ultimately provide an explanation of the identity and history of the Garamantes.

Even the scanty knowledge we possess about the Tuareg should render it possible to include them within one or other of the larger divisions of the human race. They are usually described as a Berber people, but if by this is meant a part of a uniform stratum of population extending all over North Africa, the assertion does not mean very much. The more one studies these so-called Berbers, the greater is the lack of uniformity which appears. Mommsen said that throughout all the alien invasions of North Africa the Berbers had remained unchanged like the palms of the oases and the sands of the desert. Sergi says that no element other than the Mediterranean type has entered into the composition of the Libyans. These statements represent the usual view. It is quite true that Phœnicians, Romans, Greeks, Vandals, Byzantines, Franks, Persians, Jews, and Turks alike had little influence on the ethnic type of the Libyans whom they found in these lands. They came; for the most part they made separate colonies and lived their lives apart; and they passed on their way. Some colonies of Jews remained, and the Turks left a half-

breed servile population in certain places; but the others have disappeared completely. Some, like the Romans, tried to administer the land, and when, like these, they administered through the Libyans they succeeded. Otherwise they failed, or were content to trade from fortified stations and posts. Thus it came about that the Romans civilized and taught, but changed nothing in the human texture of North Africa. The Arab invaders alone, after the Rise of Islam, mixed appreciably with the Libyans, but the events which attended their advent and their absorption in great part by the conquered are sufficiently recent and well recorded to enable us to differentiate between the pure and the Arabized stocks.

Although we can therefore agree to disregard all but the cultural influence of the aliens and examine the so-called pure Libyans, it has never been sufficiently shown that this residual element is too far from uniform to be deemed of one origin, or to form a single race. The bodily habit of the principal types of Libyans is well summarized by a learned French historian of North Africa. There are certain characteristics common to all types, namely, the straight face and horizontal but not protruding eyes, their noses, which are never flattened as amongst negroes, the well-proportioned bodies, and the black or brown hair, which is never woolly. Their other characteristics however divide them into three types:

Type (*a*): Dolichocephalic, straight forehead with prominent eyebrow bones. Tall stature. Face tapering from the temples, with unobtrusive cheekbones. Thin long nose and straight chin. Unobtrusive muscular development, but dry and sinewy limbs. Broad shoulders and slender waists, the trunk forming a reversed cone.

Type (*b*): Dolichocephalic, with salient occipital and lateral regions, and pentagonal skulls. Small stature. Short, broad face with well-developed cheekbones and broad jaws. Large and usually convex nose. Salient chin, with large rather fleshy lips and more growth of beard than in type (*a*). Broad chest and hips. A type obviously related to the Cro-Magnon man, who is also represented in a purer state.

Type (*c*): Brachycephalic. Small stature. Short, broad face. Often curved forehead. Largeish mouth and rounded chin. Scarce beard. Smaller thickset chest development.

In these types of Libyans will be recognized, not a mixture or fusion, but a persistence of the characteristics of three and perhaps more human varieties. The results of breeding are more often the reproduction of dominant characteristics in certain proportions then a blending of peculiarities into a common type. Besides the three types cited there are others more difficult to enumerate. There is, for instance, the more obvious Cro-Magnon man in the Kabyle country and among the Guanchos of the Canaries who are now extinct as a pure race. And there are the Atlas blonds as well as certain early negroids. Of these

types, (*a*) includes the Tuareg, and all the Tuareg seem to belong to this type and to represent its purest form. There are also others in the category who are not Tuareg, the reason for which we shall see in due course. But Nomads seem to be confined to (*a*) type, and do not occur in (*b*) and (*c*) types, which bears out the contention that this mode of life is a racial characteristic.

At this point we must turn to the theory which has been expounded by the one man who has made North African anthropology a lifelong study. The views of Sergi, the author of ' L'Antropologia della Stirpe Camitica ' and ' The Mediterranean Race,' are well known to students. They are briefly that there is a subdivision of the species Homo Albus called Homo Eurafricanus, parallel to the groups Homo Nordicus and Homo Alpinus. Homo Eurafricanus is held by this authority to have developed independently of the other types, and to include the category known to the more orthodox as Homo Mediterraneus. It is unnecessary to enter into the merits of the controversies among anthropologists regarding the relative significance of cranial measurements, hair texture, eye colouring, bone structure, skin pigmentation, and bodily stature. So far as I have been able to understand the thesis, Sergi dismisses most of the hitherto accepted definitions of race and species as relatively unimportant. He has proposed that his Eurafrican race (using the word in its widest sense) had its cradle in Africa itself, either in the region of the Great Lakes or else in the Sahara when the deserts of to-day were lands flowing with milk and honey. Sergi has divided this Eurafrican sub-species of man into two families of peoples, the Eastern and the Western or Northern Hamites. In the former category are included the Ancient and Modern Egyptians, Nubians, Bejas, Abyssinians (excluding Himyarites), Gallas (including Somals), Masai and Wahuma; in the latter are the Mediterranean Berbers, the Saharan Berbers (that is, the Tuareg and the Tebu), the Atlantic Berbers, the Fulani, and the Guanchos. The first difficulty encountered is that these categories include people of such dissimilar characteristics as the fuzzy-haired Nilotic Hamites and the fair wavy-haired Atlas Berbers. If this is so, racial distinctions as they are usually understood must break down. He groups together all sorts of diversity of characteristics both in bodily habit and in skull formation. In pursuits and languages there is equal lack of uniformity. Indeed, Sergi uses so many contrasting epithets of his race that the definitions become wide enough to include every type of man except negroes and pure Mongols. He has replied to objectors that the characteristics of his race are variable but constant, that each variety of characteristic recurs in every branch. But even if this could be sustained the generalization seems rash, for it traverses any system of classification. When tall men and small men, dolichocephals and brachycephals, woolly haired and straight haired, nomads and sedentaries, and black and tan all belong to a common stock, the implication is inevitable that the

definitions hitherto accepted by other anthropologists are worthless. He has stated that such diversities are due to specialized characterization having been evolved in particular surroundings. He explains the incidence of blonds in the Atlas by their geographical surroundings, though he forgets that there are no indigenous blonds in the far higher mountains near the Great Lakes of Africa, nor indeed, elsewhere in the world, except where nordic blonds are indigenous, namely in North-Eastern Europe. It is very difficult to accept the implications of the Sergian hypotheses. His reasons why the Libyans display such diversity of type are unconvincing, and I for one can find no comfort in them.

Before leaving the subject I would like to draw attention to the passage where Sergi tries to show how similar are the Ancient Egyptians and the Libyans. It is a matter of some doubt how useful it is to prove that these peoples are of the same stock when the latter display three distinct types, when Egyptian records point to there having been two or more different types of Libyans, and when in writing and painting they have been at such particular pains to display the differences between the people of the Nile Valley and the Westerners, and not the similarity. Nor does it seem to me worth showing that two divisions of different families of Hamites are more similar than obviously are two families within the same group, as, for instance, the Ancient Egyptians and the Upper Nile Hamites or the Tuareg and the Tebu or Fulani. This line of argument seems to weaken his own classification.

As I have referred to the question of blonds in the Atlas, a word is perhaps necessary, for the subject is one that has excited much controversy in the past. I see no reason to doubt that the blonds of the Atlas are a nordic folk. They occur at the one point in Africa where a comparatively recent nordic element is most likely to have settled after crossing the Straits of Gibraltar. These blonds are probably late nordic immigrants, and they have little to do with the far more tenuous stratum of nordic humanity which is spread much further afield, all over North Africa, and to which allusion will be made towards the end of this paper. The true nordic blonds of the Atlas are probably not very numerous. But type (*a*), which has been described, seems to have some nordic in its composition and it is very common. Its origin is not clear. I do not think it is wholly Mediterranean, as has been suggested. I am, however, not suggesting that the Tuareg are the descendants of the Vandals or of the Crusaders, as has been advanced by some people.

Owing to the diversity which the Libyans display, I have found it difficult to accept the view that they are descended from a single stock. It is fruitless to examine Sergi's hypothesis any further if one holds these views, because there is not any room for them in his comprehensive scheme of things. Since the Tuareg display only a single type, namely that called (*a*), and are nomads, and since the type called (*b*) is essentially

that of the Libyan agriculturalists, who are the majority of the population of North Africa, I am inclined to regard the characteristic specimens of the latter as the prototypes of the race which was principally responsible for the peopling of Libya. Conversely, I propose to speak of the Tuareg as a race separate from the sedentary Libyans who nevertheless, on account of intermarriage, include a number of the Tuareg type, lacking only their characteristic mode of life. In the light of these premises, the justification for which is too long to go into here, I now propose to examine what we know of the Tuareg in history, and to consider whether records justify the assumption of different origins for the Libyans.

It is unnecessary to examine the references to the People of the Veil between the time of which the Arabic authors wrote and modern times, though it is noteworthy that one of the tribes which has been giving the French and the Spaniards most trouble during the recent fighting in North-West Africa, is called Sanhaja, the name which was honourably borne by one of the four or five great divisions of the Veiled People as late as the sixteenth century. Though probably of the same origin, the present-day tribe would seem to have lost many of its Tuareg characteristics, except its dislike of foreign domination.

Leo Africanus, writing in the early part of the sixteenth century A.D., divides the inner parts of Libya between the Atlantic and the Nile into five or six principal areas. The first area in the west is that of the Sanhaja; then came the people who are variously called Guenziga, Zanziga, Jedala, or Ketama. Then came the Targa people, and then the Lemta. All these, and not only the Targa, the name which the Arabs eventually applied to the whole race, were Muleththemin, or Veiled People. The fifth area east of the Lemta was occupied by the People of Berdeoa, the people of Bardai in Tibesti, as I presume, and beyond these was the country of the rascally folk who apparently inhabited Kufra and were, I suppose, Tebu. The people of Berdeoa may or may not also have been Tebu. If they were not Tebu they were Tuareg, but this problem is rather bound up with the history of the Garamantes than with the matter under discussion. The difficulty surrounding the name of the folk in the second area is to some extent mitigated by the account which Ibn Khaldun gives of the ancestry of the Libyans in his great 'History of the Berbers,' but this also does not concern our subject very closely.

It may be of sufficient interest at this point to remind the reader of how far the Sanhaja Tuareg were responsible for modifying the history of the civilized world when, soon after the introduction of Islam into Africa, they formed a desert confederation with a distinctly religious basis. The genesis of this league of desert tribes was due to a fanatical sect of Holy Men who were responsible for the conversion of the Tuareg of the west to Islam. They called themselves El Merabat, the name which was taken by the Confederation of Desert tribes who captured Fez and established what we have learnt to call the Almoravid

Dynasty. These rulers in time overran the whole of Maghreb el Aksa; they overflowed into Spain and in the fullness of time stimulated the arts and sciences to the greater glory of civilization in the west. The ultimate result may have had little to do with the Tuareg, but they gave the initial impetus and fire to the movement.

Ibn Khaldun's ethnology of the Libyans is somewhat empiric. He was much influenced by the patriarchal system of the Arabs and by the desire of all good Moslems to establish their relationship with the people of the Prophet. But his account of the descent of the Berbers shows quite clearly that whatever he may have written he did not regard them as being of one uniform stock. The Berbers, he says, are descended from two heroes, Branes and Madghis, who were the sons of Mazigh, the son of Canaan, the son of Ham. The genealogy is of course necessary to connect two great divisions of Libyans together and to account for their unity of language. One might consequently with reason speak, not of the "Mazigh Völker," but of the "MZGh-speaking people." Dual descent from Branes and Madghis is not only consistent with the difference of physical type observed, but also with the organization of many Algerian and, I think, Moroccan villages into two groups or "phylæ" of inhabitants within the single community; some have adduced as the explanation of this phenomenon the survival of some form of exogamic system, but diversity of racial origin seems a more reasonable and easier hypothesis, and one which appears more readily to fit in with known facts. Ibn Khaldun's classification however is hardly consistent, for the neatness of his system is destroyed by the statement that the four races of Muleththemin, or People of the Veil, were in some respects different from the rest of the Libyans, and moreover that two of these four groups claimed descent, not from the ancestry he had previously mentioned, but from Ifrikos, the son of Himyer, from beyond the Red Sea, whence the former came and invaded Africa, conquering and naming the land of Ifrikiya, which is now called Tunisia. Here then appears a third origin for some of the Libyans which is different from that of the other peoples who claim descent from Branes and Madghis. The four nations of the Muleththemin also appear to form a category unto themselves under the name of the Children of Tiski, among whom, however, are also included certain other groups of Libyans. Ibn Khaldun's views, whether true or not, support and emphasize both the dual origin of the Libyans and the separateness of the People of the Veil.

The supposed land of origin of the Beranes and Madghis Libyans was Palestine, where, in view of the remoter ancestry of Madghis, they were related to the Gergasenes and Philistines. The legend of their arrival from those lands may in part be accounted for by a memory of the Carthaginian immigration, adopted by the indigenous population into their own historical stock-in-trade. The Tuareg, in exactly the same way, adopted a legend connecting them with the Himyaritic folk

on the eastern shore of the Red Sea, partly because they were at one time associated with a population which very probably did in fact come from there and partly because they desired in their pride and vanity to be connected with the Arab countries of the Prophet. Ibn Khaldun suggests this origin for two sections of the Muleththemin, the Sanhaja and Ketama, on the authority of their own current beliefs. Barth found that the same belief also existed among the Aulimmiden Tuareg, who are the modern descendants of the Lemta. How or why the first two sections acquired the legend, which is entirely inconsistent with their own history, does not immediately appear, but the reason is easier to perceive in the case of the Lemta. They were the easternmost of the four nations of the Muleththemin. Moreover, they extended southward from the Fezzan to the area we call Bornu, near Lake Chad, and there for some time ruled over subject people to whom we can refer by the name of Kanuri. That an invasion from the Himyaritic coast of Arabia into the neighbouring parts of Africa did take place is generally admitted. It accounts for the Semitic influence in Abyssinia and for certain pre-Moslem Arabs in the Nilotic Sudan. Furthermore, it is probably the true explanation of the Semitic or rather non-negroid element among people like the Kanuri. It has only of recent years been realized that the whole country from Bornu to Wadai and Darfur is geographically one zone in which migrations in different directions were possible without any physical obstacles interfering. The conditions of all this belt are similar, and there are no geographical boundaries. The trend of migration on the whole seems to have been from the east towards the west, and this is the ultimate cause of the expulsion of the Tuareg from Bornu into Aïr and towards the Aulimmiden country of the Niger Bend. The association of the Lemta Tuareg with people who could authentically derive their ancestry from Arabia seems to me to provide sufficient explanation of the occurrence of the Himyarite legend among the eastern People of the Veil. From them it probably percolated to the tribes of the Sanhaja and Ketama Tuareg, with whom there was of course contiguity and much contact.

The adoption of foreign legends in this manner is proved in many instances elsewhere in the world. It is easier for me to believe that this is the true explanation than it would be to accept the story of an Arabian invasion of Tuareg, which is contrary to all their history and their indubitable migration across Africa from north to south, and not in the reverse direction. The question of a Syrian origin for the other Libyans and their parentage with the Philistines will arise later.

There is a grievous gap in our records of North Africa between the Arabic authors and the writers of classical times. The latter are as valuable as the Christian churchmen are indifferent to matters not concerning their own small interests. Only a few references are of any worth ; they are all too detailed or too obscure to be discussed here. The

well-known description given by Gibbon of the Circumcelliones during the Donatist disputes in North Africa reminds one irresistibly of the Tuareg, who, emulating the fanaticism of an earlier generation at the time of the Desert Confederation of the Almoravid tribes, may well again have descended into the arena of religious and political disputes on the littoral of the Mediterranean—with less success, however, than rewarded their forebears.

The Greek and Roman authors add many details to our knowledge of conditions, but are inclined to lack perspective and sense of proportion. Many of them did not know enough about the interior of Libya to record much of use for a study of the Tuareg. From Herodotus, Strabo, Ptolemy, Diodorus Siculus, Procopius, and the rest sufficient may be learnt to be sure only that the Tuareg lived in the Inner Parts of Libya in classical times. Corippus, a late Latin author, describing the fighting between the Byzantines and the natives of North Africa during the sixth century A.D., refers to several tribes which can still be identified by name among the Tuareg to-day. The name of the Ilasguas tribe recurs in that of the country Elakkos or Elakwas, far south, it is true, of where they were fighting against the Byzantines, but still part of the area of the southernmost of the Lemta division to whom they belonged. Elakkos is still to a certain extent Tuareg country; the association of their name with the district is only comprehensible if Leo's version of the extension of the Lemta Tuareg to Lake Chad is accepted, since in the time of Corippus the Ilasguas were in the northern Fezzan. He also mentions the Ifuraces, who are now called the Ifoghas, a large tribe found both among the Lemta of the north and Lemta of the west, who wandered from Bornu and took the name of Aulimmiden.

Of all the classical authors, Herodotus, as usual, is probably the most valuable. He mentions the Maxyes and Macæ and other tribes also referred to by later authors which have the MZGh root in the composition of their names. Although it does not of course follow that the people with these names were necessarily all Tuareg, they seem in fact to have been so. The classical authorities also refer to a people called the Arzugoi and the Astacures, and other related names, which seem to survive in the name of the Azger Tuareg, the descendants in race and heirs in place of the northern Lemta. The Azger Tuareg are a confederation of tribes in the country between the Ahaggar massif and Murzuk in the Fezzan.

The accounts of the classical authors, though they do enable us to assert that the Tuareg existed in much the same areas as they now occupy, only rather farther north, do not throw much light on their origin. One legend which we will come to later, recorded by Sallust is however both valuable and interesting. Curiously enough, none of the classical authors refer to the characteristic of the face veil, the first peculiarity which must strike a stranger coming into contact with this

people. I cannot account for this omission. If the Tuareg were not veiled then, there is no information which provides any explanation of, or even allusion to, the adoption of the practice. Possibly the matriarchal customs, the flowing dress and the slender figures of the Tuareg men, taken in conjunction with their veiled countenances, may explain the reputed existence of Amazons in North Africa; the surmise is rather wild. Perhaps also in the reports which reached both Herodotus and some of his successors, of men with only one eye or of men with no heads and mouths in the middle of their stomachs, may be allusions to the slit in the veil through which the Tuareg regard the world. But all these are only suppositions and the truth has not yet been ascertained. Some of these monstrosities of the classics are placed in or near the Upper Nile valley where Egyptian records would have a people whom we can more readily identify with the ancestors of the Tuareg; and the coincidence is significant.

The Egyptians have left the most important of all historical evidence regarding the people of western Libya. They not only described the people but left pictorial records of them. But not here either can I find any trace or allusion to the veil over the face. Bates has collected some excellent examples of pictorial representations of eastern Libyans, taken from Egyptian records. From these also it is abundantly clear that several types of man are involved. It is almost possible to find among these heads the very types to which allusion has already been made. One of these types seems to be that of the Tuareg, and it is also the type of the people to whom the Egyptians referred as Tamahu and Tehenu. The people bearing these two names may have been of the same race, for the names are frequently interchanged. The significance of the name "Tamahu," and its similarity to the word "Temajegh" scarcely need to be pointed out. I make no doubt that the Tamahu were Tuareg, as we should now call them.

These people lived in the inner parts of eastern Libya; they may have extended farther west, but Egyptian records give us no help here. They came down to the coast of the Mediterranean east of Barca, which was itself inhabited by the Lebu or Rebu, a people associated with the obviously Semitic type of head shown in the plates which Bates has compiled, and in some pictures which Sergi has used. West of all these were the Meshwesh, the same, probably, as the people later called by names of the MZGh root, or as I would prefer to say, a people speaking a MZGh language. These were also, I think, ancestors of the Tuareg. Like their friends farther east, they repeatedly engaged in raiding expeditions, and, from the brief descriptions which we have, behaved like wandering tribes possessing a physique of the (*a*) type. This identification however is not so sure.

Time does not allow of detailed examination of Egyptian data. It has been marshalled by Oric Bates in a work which was better equipped

than most to draw conclusions, but which refrained from doing so. In attempting to give some reply to the question raised by the title of this paper I must be less modest, and blunder in where angels have feared to tread.

The Westerners just referred to appear to have attacked the Nile valley repeatedly. There are rumours of fighting in the IIIrd and Vth Dynasties. There was a state of war in the VIth Dynasty between the negroids of the Upper Nile and the Tehenu. In the XIth Dynasty the Egyptians were fighting against the Tehenu and Rebu farther north; Diodorus states that Sesostris conquered a great part of Libya. From the XVIIIth Dynasty onwards conflicts were continuous. At this period Amenhotep I. defeated the Imukehek in the north; the similarity of their name with the word "Imohaq" may be noted. Thothmes I. drove back the Ekbet, who seem to have been the Asbytæ of the classical authors, and Thothmes III. brought the "Libyans of the southern and northern oases to tribute." In his reign and in that of Hatshepsut it was written that "the country of the Tehenu did obeisance as did the dogs." Amenhotep III. was again successful against them, but still fighting did not cease. Progressive immigration of Westerners into the Delta of the Nile gave the Egyptians of the XIXth Dynasty great cause for anxiety. After their successive defeats the immediate neighbours of the Egyptians proved less and less willing to recommence hostilities, but the nations further west, who had not suffered, drove their neighbours on once more. When both the Tehenu and Rebu had in turn been defeated and declined again to participate in a new adventure against the Nile, we find the next people to the west of them, the Meshwesh, obliging them to unite in an offensive alliance. The pressure of immigration on the Nile came to a head in the fifth year of the reign of Merneptah, when a confederation of Libyans was joined by "the People of the Sea," was marshalled somewhere west of the Delta, and attacked Egypt in force by land and by sea. In some of these campaigns the western movement seems to have had some co-operation in the east, where Syrian tribes assisted. The invaders were again and again overwhelmingly defeated, but their immigration could not apparently be stopped, for comparatively late in Egyptian history we hear of colonies of Libyans, and even Libyan officials, in the Nile valley playing important parts.

The succession of these wars demonstrates that they were no fortuitous phenomena. There was a continuous thrust or pressure of people, the product of over-population in the west, on the lands of the Nile.

While there is every reason to suppose that the coast of North Africa was more cultivated in classical times than it is to-day on account of the denser population as well as because of the hydraulic organization introduced by the Romans, there is no reason to believe that the climate then was very different from what it is now. Already in late Palæolithic

times water was very scarce. The French school of thought holds generally that any desiccation which there has been has been slow, and that the phenomena of deserted villages and abandoned sites all over the Sahara must rather be explained by other reasons than by any rapid change in the climatic or other conditions. Circumstances contributing to the better conservation of sites in a Saharan climate alone are sufficient to account for the number and recent appearance of many remains which in less favourable climates would have disappeared. The protagonists of the theory of desiccation as an appreciably powerful agent in history are guilty of mental laziness in advancing so facile an explanation instead of inquiring more deeply into the question.

Conditions throughout North Africa, and especially in the east area, were such that the maximum population which the land could carry was strictly limited and inelastic. The invasions of the Nile Valley by the Westerners are all of the same sort. They commence as immigration and terminate in campaigns in which armies march with their families and flocks, not to defeat a political enemy, but to settle on a part of his land. However populated the valley of the Nile may have been, the hardy people of Libya must have regarded Egypt as a country of boundless wealth. Their invasions all seem to have been due to over-population in the west. It is a phenomenon which has been present throughout history, but has appeared especially obvious during or directly after the advent in large numbers of some foreign people to North Africa. The invasions of Egypt during the XIXth and XXth Dynasties do not seem to be exceptional in this respect.

The date of these invasions is important. The XIXth Dynasty may be placed between 1350 and 1200 B.C., and the XXth Dynasty from 1200 to about 1090 B.C. The association of the last big invasion to which I have alluded with the advent of the People of the Sea is especially significant. The over-population of North Africa during the last five hundred years of the second millennium B.C. was due to immigration from Europe; if the Tuareg were immigrants, as I think they must have been, they should have come in during this period.

Let us take stock of the data examined. We have three types in Libya, one of them, according to Egyptian records, of a distinctly Semitic variety. The Sea People who were allied with the Westerners were, it is usually accepted, in part at least of Syrian extraction. The Lebu or Rebu were apparently Semites of this description, and they are found on the coast of Libya in Barca, not in the interior. I regard this type as having first come to North Africa not very much before 1000 B.C., and having in the first instance settled on the coast whence the type was propagated over the country. The advent of these people seems to account for the legend of immigration into North Africa among the Berbers generally. This is what was meant when it was stated that the Carthaginians alone were perhaps not solely responsible for the story.

For the other two types prevalent in North Africa one must seek further afield. The one type is essentially the Tuareg type. It displays certain unaccountable northern characteristics (I am not here alluding to those of the blonds of the Atlas), such as wavy brown hair, fair eyes, great stature combined with grace of body, and a long face with a long skull. The other type is the Mediterranean, with a large proportion of the pure so-called Cro-Magnon man in the far west of North Africa.

I am not competent to express any view about the area of characterization of the Cro-Magnon race or about the development of the art of the Reindeer Age, but various indications seem to point to the type which I have known as (*b*), being more ancient in North Africa than the type known as (*a*). In general there seems to have been a north-to-south movement of the humanity which peopled the Mediterranean basin, with the one exception of the Grimaldi race of the Palæolithic age in the south of France, which was probably negroid. It is reasonable to suppose that these people came over from Africa by one of the land bridges which then existed between the two continents. A careful examination of the ethnology of North Africa shows that there is apparently a sub-stratum of negroid population below or older than the Libyans; it is a layer of humanity not accountable by subsequent immigration, but apparently only to be explained by its having existed before the advent of any of the Libyan races. In the accounts given of North Africa the classical authors concur in identifying the presence of negroids or negroes in areas far further north than those which they now inhabit permanently. In historical times Aïr was a country belonging to the negroid Goberawa people until the Tuareg came into the mountains from the south-east, and before that from the north. The Grimaldi race was pushed out of Europe and southward in Africa, even as the negroids in historical times have been.

From this time onwards the direction of movement is always the same. People were being driven out of Europe southwards. In Neolithic times the direction from which Libya was receiving its influences was from Europe and not the reverse, as witness the apparent spread of the Ibero-Maurusian art from Spain into North Africa. But for our purpose we need not go farther back than the time when there was a Cro-Magnon race in Northern Africa with a bank of negroid population behind—that is to say, to the south—which had once extended into Europe. What is now the Sahara was then entirely negroid. After certain developments in the late Palæolithic and early Neolithic Periods in North Africa attributable to the Cro-Magnon race there appears a new industry, which is not of indigenous growth. It is called the "Berber" industry, and its advent seems to coincide with the introduction of fresh blood from without. The Neolithic industries were still current in North Africa as late as 1000 B.C. So far as can at present be ascertained, corresponding periods in North Africa were later there in point of development than in

Europe. Moreover, each period on the coast was earlier than in the interior, and not the reverse, as should have been the case if the Sahara had been the cradle of any race. The invasions of the Neolithic Period culminated in the arrival of the Sea People into Africa and the introduction of Bronze Age culture. This civilization seems to have reached North Africa late; it appears to have been introduced from some other source than the Nile Valley. Since the dates seem roughly to correspond, I suggest that the Sea People of the XIXth and XXth Dynasties and their predecessors brought it.

The background for all these invasions must be sought in Europe. With the advent of the Bronze Age to Europe from its cradle somewhere in the East there had come a people who, if they were not responsible for the use of the metal, at least seem to have appeared contemporaneously with its adoption. They were a brachycephalic race akin to the people of the Far East, and they swept across Europe. Hemmed in between the long-headed people of the north and the long-headed people of the Mediterranean coast, the apex of this wave of humanity reached the Atlantic coast in Brittany, but the lateral force had spent itself, and the movement ceased. The pressure of people on the coast of the Mediterranean must nevertheless have been enormous; it must have provoked migration farther and farther south, and eventually out of Europe altogether into Africa. It is scarcely conceivable that it should have been otherwise. The appearance of "Berber" Neolithic culture is perhaps due to this sequence of events. But even when the brachycephalic people had ceased pushing their way across Europe, pressure on the south did not lessen. For at the close of the Bronze Age the fair nordic races came down the rivers across Europe and created a series of disturbances which affected the whole civilization of the Mediterranean. With their weapons of iron, a new metal in the hands of a fresh people, they in their turn swept over the continent and pushed the round-headed people up into the mountains. These movements procured the introduction of iron into Italy at the close of the twelfth century B.C., the abandonment of bronze in Spain, the violent fall of the Minoan Sea Power in Crete, and the break-up of the maritime states on the eastern shore of the Mediterranean. It led to the disturbances which caused the latter to take to colonization and piracy. "In short," says Bates, "all southern Europe and Asia Minor felt the thrust that pushed the Thracians into the Balkans (in addition to the other phenomena already mentioned). The dispossessed heirs of the Bronze Age could find nowhere, if not in Africa, a country eminently habitable, held by a weak Neolithic or partly Neolithic people, and cut off by sea from the invaders." The only trouble was that the lands there were already inhabited and could hold no more. The culmination of these invasions from the north was the attempted colonization of the Nile Valley by the Libyans whose vain efforts have been described.

The existence of the Cro-Magnon race and the modified types of the category called (*b*) can be shown to have been living in North Africa before the movements which I have described took place.

If therefore the type called (*a*), and that is the Tuareg race, is more recent, its advent can most reasonably be looked for in one or other phase of these movements. The ancestors of the Tuareg may have come to Africa either after the advent of the Alpine race and the Bronze Age culture, or during the succeeding migrations which occurred after the Nordic expansion. In the former case they may be associated with the so-called Berber Neolithic industry as I have already stated. I should be inclined to accept this view were it not for the apparently nordic characteristics which the Tuareg possess. These point rather to the second alternative. The principal difficulty surrounding the latter view is that the Tehenu, who in later history at least are identified with the Tuareg, appear very early in Egyptian records, in, say, about 2500 B.C., when there is little justification for any Nordic element in Africa. There is an echo of the invasions which seem connected with the second phase in the story preserved by Sallust. He records that after Hercules perished in Spain, his army, which had been made up of various elements, was disbanded. As a consequence the Median, Persian, and Armenian troops under his command sailed over to Africa and settled there, intermarrying with the local population, and with them creating the various Libyan peoples in existence. The names which tradition has given to these immigrants are perhaps not very important, but the Hercules legend, the march of his army westwards along the northern side of the Mediterranean, and the migration of certain portions into North Africa are surely connected with the turmoil which followed the Nordic expansion.

I am aware that I have ventured in a superficial manner upon very debatable ground. Throughout I can see a trend of movement from north to south. I am not aware of evidence which would show that Europe was either civilized or peopled from Africa, though the development of the cave painting and allied arts raises certain questionable points. In the course of these movements which I believe always set in the direction I have indicated, some nordic folk entered North Africa, probably as a continuation of whatever impetus it was which sent them into Greece and Italy and the Balkans. When they reached Africa they were at a disadvantage as compared with the inhabitants, and found themselves unable to compete successfully against the Mediterraneans. Consequently from the earliest times they betook themselves into the hidden places and into the interior of the continent; they survived only because they were very hardy and because no one coveted their land. I think these people were the ancestors of the Tuareg, whose character and social organization in many ways supplement their northern characteristics of physique. The physiological reason why they managed to survive in

the Sahara is probably the existence of cold nights and an atmosphere free from disease. But of course one may be deceived by the apparently nordic strain in the Tuareg, and it certainly seems difficult to account for the presence of northerners so early as in the Vth Dynasty. I should regret to have to stake much of any solid value on the correctness of my views! My hazardous statements have been made of them rather with a view to provoke criticism than anything else.

It is impossible to separate the history of the Tuareg from that of the other Libyan people, but no one except Sergi has attempted to give a comprehensive picture of the whole population of North Africa, and he has given one which many will not accept. Certain lines of investigation seem to lead towards promising developments pointing to a connection of Saharan culture with centres rather farther afield. Only when some really satisfactory work has been accomplished on the subject of the so-called Garamantian civilization will much progress be said to have been achieved.

Before the paper the PRESIDENT (Dr. D. G. HOGARTH) said: We open with a paper by Mr. Francis Rodd, the originator of the scheme of going to Kufra, though it did not pan out as he had originated it. Subsequently he made a long stay in the north of Africa, particularly in the district of Aïr, which is one of the great centres of the caravan routes. He made a special study of the Tuareg race in various parts of the Saharan region, and it is on the characteristics of the Tuareg, with certain speculations as to the possible origin of their rather singular type and the remains of a very singular civilization that we hope to hear him this afternoon.

Mr. Rodd then read the paper printed above, and a discussion followed.

The PRESIDENT: Mr. Francis Rodd has stated very clearly the characteristics of the Tuareg, and has suggested some very interesting but, as he himself admitted, rather hazardous speculations as to their origin. There are one or two present who I think would be able to speak on different parts of the subject. Sir Flinders Petrie, who has done more work in distinguishing types on the Egyptian monuments than anybody else, might tell us something useful with regard to the possible occurrence of the Tuareg type among those representations of Libyans which Mr. Rodd showed. We also have with us Sir Denison Ross, a great authority upon the Arabs and upon peoples of the world generally, no less in North Africa than anywhere else. Perhaps he would also like to say a few words, and if any one else feels he could throw light upon the subject, either on the Tuareg or upon speculations about them, we shall be glad to hear him afterwards. I will call on Sir Denison Ross to speak first.

Sir DENISON ROSS: I am, of course, a mere beginner in the study of the Tuareg, and I am not sure it was not Mr. Rodd, the lecturer, who actually had to do with converting me to that interesting study. Naturally one feels that it is one of the most important ethnographical and historical types connected with the continent of Africa, and it is quite time that Englishmen took up the subject. The Italians and the French have done a good deal, but the field is waiting for workers, and Mr. Rodd is setting an admirable example in showing how much remains to be done.

There are three points I would like to mention briefly in connection with the

lecture. The first is the veiling of the men. I noticed that the lecturer had no theory as to how that practice arose. I remember the first caravan of Tuareg I ever ran into. The only thing they reminded me of was the streets of Alwar, the capital of the Maharajah of Alwar in Rajputana, where one sees the men walking about with great sheets of paper before their mouths, the object of which is to keep the flies off—not for hygienic reasons, but in order to avoid taking life, even the life of a fly; and one wonders whether the Tuareg had not some such object in view so far as the men are concerned, for apparently the women do not matter. I notice no one seems to have accounted for the veiling, and it is extraordinary to see all the women free and happy without veils and the men all boxed up.

Another point, if I may take you so far afield, is the intercourse between Abyssinia and Arabia. I think that this went on to a far greater extent than has usually been recognized; and that also brings to mind a very curious circumstance, namely, that when in the seventh century the Arabs started to conquer the whole world we never hear of an Arab expedition into Abyssinia. It was not until about the middle of the sixteenth century—about 1527—that there was the first invasion of Arabs into the country of the Abyssinian Christians; and you know upon that occasion they were saved by the extraordinary contingent of four hundred Portuguese, who helped to keep the Muhammadans at bay. The reason for this early immunity from Moslem invasion was, I think, this constant intercourse, and when some of the first converts to Muhammadanism ran away—they escaped across the Red Sea to Abyssinia, where they found safe shelter. It may be remembered that the first Caller to Prayer, the *Muezzin*, employed by the Prophet was an Abyssinian.

The third point is the question of language. I had the misfortune twenty years ago to review a grammar of the language which was called 'Handbuch des Schilhischen von Tazerwelt' in German, and I knew nothing about it, of course, as I still do not. But one thing I did remark as curious was the grammatical permutation of initial consonants, which reminds one so much of what happens in the Celtic languages, especially in Welsh. That may help us with the theory of the migration of the white man into North Africa. Perhaps he may have influenced the local language at some stage.

In the fourth place, with regard to the Libyan script which Mr. Rodd did not mention, though he gave us a comparative table of alphabets in the slides, Father Chabot is gradually working it out, and when I saw him last he had got out about thirty different words, of which he was fairly sure. But I would like to mention that only within the last five years has any progress been made in the deciphering of the Libyan language. One realizes that those people are the basic element of civilization in that part of the world, and if we can one day bring together the shorthand of the Tuareg and the Libyan script and read both to our satisfaction we shall have got nearer the idea at which Mr. Rodd is aiming.

Sir FLINDERS PETRIE: It seems that one of the most interesting questions is what lies behind the condition of things which has been outlined to us. With regard to the veiling of the men; it seems obvious from what has been said that we must look to migration from the north, and in all probability the Tuareg were the occupants of Mauritania before they were turned out. People accustomed to live in a green country, if suddenly driven out to live in the desert, would find very great need for a veil, in order to protect the skin, to prevent the glare, and to stave off the harsh conditions of living out in the open. It is a very great strain to a person accustomed only to green land to go into

a perfectly bare land of sand, and I think the veil may naturally have sprung from that cause, also because it would act as a filter to keep the sand out of the lungs during sandstorms.

With regard to the position of the women, it is very much what one sees among the nomads in Sinai; there are, there, the elements which would result in very much the condition which has been described to us. The woman owns the whole property; she has all the silver and coins on her face-veil; she owns the whole of the small cattle, and drives them out; her children manage those cattle, but they have nothing to do with the camels, which are the man's business. The woman and children generally live in the tent, and, in Sinai, men never occupy the tents at all, day or night. The tent is the property of the women, and that state of things might possibly give rise to the position of the women being repositories of all the knowledge and of the permanent elements of the civilization. The men were occupied generally in wandering about with their camels. There is an illustration of that in the Egyptian names of the priesthood on the Eastern border of Egypt: in the Wady Tumilat the priestesses were called "the Great Ones," but the men, the priests, are called "the wandering brethren," pointing distinctly to the man being a wanderer from a very early time. Therefore I venture to think that that system, which is natural, and endorsed to a great extent by the nomadic life in desert country, may very likely have given rise to this position of the women, where there is no great prejudice against it, to start with.

With regard to the Egyptian connections, I very much wish we had better portraits of those of the earlier period, because the farther back we go the more basic our information is. We now have a definite idea that there was a great Libyan migration into Egypt somewhere about 9000 or 10,000 B.C., which we used to think the beginning of all the prehistoric civilization; we now know it came on the top of something very much higher, which they picked up and utilized. After that, there was a Libyan stratum in Egypt at the pyramid period, and later the very important Libyan migration into Egypt, forming the IXth or Xth Dynasty; this came in on the west of the country and established a new capital on that side, and was a bigger terror to the Egyptians than anybody had previously been. In general, the Libyan must have been a very unsettling element in Egypt. You can see the whole thing going on now: the western side of the country is in a state of worry from the Libyan who continually settles in the country and persists in holding arms, and generally makes himself a pest and a nuisance. The Libyan has been continually forcing his way into the country, and I very much hope that the present study of the condition of these tribes, and the relation of them, may perhaps be solidified historically by taking into account all the Libyan migrations into Egypt, one after another. After the great Libyan migration of the IXth and Xth Dynasties, a great deal of Libyan influence came in in the XVIIIth Dynasty, for Adhmes I. at the beginning of the Dynasty married Libyans, and that cleared the dark complexion of the ruling family. After that there was a very long period of a gradual movement going on from something like 1200 B.C. down to the Persian period. During the whole of that time the infiltration continued, and culminated in the time of the XXVIth Dynasty. I hope these studies will help to throw light on the successive migrations into Egypt and on the periods when pressure was coming from the north into Africa, and pushing the existent people on to the borders of Egypt.

Mr. F. A. EDWARDS: I should like to ask whether Mr. Rodd has considered the theories of Professor Elliot-Smith with regard to the origin not

only, of course, of the Berbers but of the Egyptians and their whole connection. The lecturer referred to the studies of Sergi, who has unified, if we might say so, the early conditions of all the different peoples around the Mediterranean, but Professor Elliot-Smith carries that further and takes the same race right through the south of Asia.

A FELLOW: I understood the lecturer to say that the camels had no water for six months. I have known camels go without water for nearly two months under certain conditions, when doing no work and when grazing from herbage which springs up after thunderstorms, but I have never heard of them going as long as six months. I should like to know whether Mr. Rodd has personal experience of that.

Mr. FRANCIS RODD: If there are no further questions I would like, first of all, to deal with the point in regard to the veil. The veil among the Tuareg has become entirely a question of ritual; whether it was so originally or not, I do not know. It is not utilitarian. It is not taken off by day or by night. The men sleep in their veils, and they will not show their faces unveiled because they consider it indecent. Whether that has sprung up owing, in the first instance, to some utilitarian motive, I cannot say. As I explained, the difficulty is that there are no early references to the veil. There is, of course, no doubt about the veil being useful. It does protect the face and also the lungs, and it keeps the air that one breathes in through the mouth and nose cool on account of the condensation on the veil. On the other hand, all the other great dwellers in hot countries like Arabia do not wear a veil, though they do pull a piece of their handkerchief across their faces when there is a storm or when the sun is particularly oppressive. They do not, however, do that in a ritual manner. The only connection in which I have seen other people with a veil apart from the reason that Sir Denison Ross has alluded to, is a picture, which occurs in Mommsen's 'Ancient History,' of a Persian with a handkerchief across his mouth. I do not know whether that has anything to do with this practice in Africa or not.

The second point is with regard to Prof. Elliot-Smith. I should like to take that in two parts. The connection between the Libyan races and the early Egyptians is one which Sergi has tried to establish, as I think rather to the detriment of his own theory, by showing the similarity between two peoples who should be more different than two peoples within any one of the two families that he has suggested, namely the Eastern and Western Hamites.

In regard to the cultural connection and the civilization of the Tuareg, we have not had time to deal with that to-night. In particular their curious form of house building and planning, again, I think, on strictly ritualistic lines—certainly a very conservative tradition—is more difficult to establish. Curiously enough, the dating of the Bronze Age in Africa west of the Nile is so conspicuously late that it would appear to indicate little contact of a cultural variety between the Nile Valley and Libya. The Neolithic probably went on very late indeed in North Africa. In fact, the Tuareg are hardly out of the Neolithic now and never appear to have been in the Bronze at all, or at least very little. The supposition, therefore, is that they learned the use of bronze and iron through some other channel, and perhaps through the invasion of the Sea Peoples.

The other aspects of Tuareg civilization which require investigation are their rock drawings and their alphabet. I think there are certain connections which are worth working out between these remnants of a far higher degree of civilization than they now have and the remains which are coming to light

in Crete. There appear, curiously enough, to be certain similarities with one of the two Minoan linear scripts and the Libyan which are worth considering, and there is a very famous sculpture on a rock in the Fezzan, which Barth recorded, of a man with a bull's head, which is also worth going into. So that as far as that goes the connections of the Tuareg civilization appear to be with countries outside Egypt rather than with countries in Egypt, which is not consistent with the views that Prof. Elliot Smith usually advances.

The third point was that of camels. Perhaps it may be as well to point out that the Tuareg country in the main consists of three large groups of hills in which there is a very considerable degree of vegetation which keeps much greener for long periods than does that in Arabia, except in very restricted areas. The Tuareg normally send out their camels to pasture both in Aïr and the Dugga for four months. I do not personally know they keep them out as long as six months, but I see no reason why they should not. I mentioned six months because I happened to be reading recently of the annual migration of the Kubabish in Kordofan, where, on a recent journey accomplished by Mr. Newbolt of the Sudan Civil Service, he records that the Kubabish make a habit of leaving their camels out on the steppe desert for many months without water, their men living on milk and their donkeys on water-melons. The latter is, of course, fairly well known.

The PRESIDENT: Mr. Rodd has given us a very interesting paper and initiated quite an interesting discussion. It is probably known to many here that the possible connection between Crete and Libya is not suggested by any means for the first time to-day. It has been an idea of Sir Arthur Evans almost since the first discoveries were made in Cnossos, and he is still following it up. He is now preparing his second volume on the Minoan civilization, and has been very much interested in a certain ivory in the Ashmolean Museum found at El Kab, in Upper Egypt—a pre-Dynastic ivory, so far as we know, which shows the single side-lock which was to be seen in certain representations Mr. Rodd put upon the screen. The single side-lock is also found in the Cretan representations, and Sir Arthur Evans thinks it is another link in the evidence connecting the two. He has also, of course, taken into consideration the possible connection between T'ifnagh Libyan script and one of the forms of linear script in Crete. I should like to ask Mr. Rodd how that script is used. Is it purely monumental and found only upon rocks, or used for writing and correspondence?

Mr. FRANCIS RODD: It is used for correspondence, but is dying out.

The PRESIDENT: It could be read by an ordinary tribesman?

Mr. FRANCIS RODD: Certain tribes can and do read it and use it for sending messages to one another.

The PRESIDENT: And there is reason to think it was more in use formerly than now?

Mr. FRANCIS RODD: Within human memory it was more in use.

The PRESIDENT: The whole problem of the origin of the Tuareg is extremely interesting. One would not expect to find very much about them in Egyptian monuments, because I gather it was not the Tuaregs who came through Egypt or much into it, but that they were the propulsive force behind other peoples. Incursions of Libyans into Egypt must have been driven in front of the Tuareg migration.

As to the Tuareg themselves, it is difficult to judge their civilization—what I think Mr. Rodd means by the Garamantian civilization—without more study of the different factors in such civilization as they possess now; but the possi-

bility that they did come equipped with some recollections, or some part of the Cretan civilization, is not to be dismissed lightly, and is a subject on which I hope there will be a great deal more investigation.

It now only remains to thank Mr. Rodd for giving us an extremely interesting paper and for having, as Sir Denison Ross and Sir Flinders Petrie have both said, indicated a subject to which it would be well that more research should be devoted. I am sure you will all give Mr. Rodd a very hearty vote of thanks for what he has communicated to us this afternoon.

DID SIR RICHARD HAWKINS VISIT THE FALKLAND ISLANDS?

H. Henniker-Heaton

"*La priorité de découverte constituant le premier et principal argument des écrivains anglais à l'appui de leur pretentions on doit s'attendre à ce que leurs adversaires y contredisent.*"—PAUL GROUSSAC.

ON geographical and historical grounds the question of proving whether Sir Richard Hawkins did or did not discover the Falkland Islands is of some importance, although the solution has now an academic value only. The fact is, that the opponents of Hawkins' claims have been heard fully, but, as far as the writer is aware, no reasoned attempt has yet been made to reply to their criticisms.

M. Paul Groussac, Director of the National Library of Buenos Aires, in an elaborate treatise published in 1910 under the title of 'Les Isles Malouines,' claims to show that Hawkins did not in fact see the Falkland Islands. He bases his disparagement of the claims of that navigator largely on an article by Commander (now Admiral) B. M. Chambers, R.N., published in the *Geographical Journal* in 1901 (vol. 17, pp. 414–423). In that article Commander Chambers stated that he proposed to show "that the evidence of Hawkins ever having visited the Falklands is entirely insufficient, and then to substitute a theory to elucidate the seemingly inexplicable account of that generally accurate chronicler." M. Groussac gives a faulty translation of the narrative of Hawkins (albeit in good faith), accepts all the criticisms of Chambers, and rejects his theory in substitution. Of this theory later mention will be made. M. Groussac's own opinion was that Hawkins came across Jane's account of the discovery of the group by John Davis in the *Desire* some eighteen months prior to the date of his own alleged visit, and wrote from a confused mass of recollections of his experiences of the Patagonian coast.

Whether any such contention can be supported can best be determined by a complete extract of Sir Richard Hawkins' narrative in so far as it is in any way relevant to the discovery. The following transcript is taken from the excellent edition of 'Purchas his Pilgrimes,' issued in 1906 from the Glasgow University Press:

"The eighteenth of December we set saile [*i.e.* from Isla Grande, about 20 miles south-west of Rio de Janeiro], the winde at North-east, and directed our course for the Straits of Magalianes. . . . In our Navigation towards the Straits, by our observation we found, that our Compasse varied a point and better to the Eastwards.

"In the height of the River of Plate, we being some fiftie leagues off the coast, a storme tooke us Southerly, which endured fortie eight houres. . . .

"The storme ceasing, and being out of all hope, wee set saile and went on our course. . . .

"The wind continued good with us, till we came to 49. degrees and 30. minutes where it took us Westerly, being (as we made our account) some fifty leagues from the shoare. Betwixt 49. and 48. degrees is Port Saint Julian, a good Harbour, and in which a man may grave his shippe, though she draw fifteene or sixteene foot water: But care is to bee had of the people called Patagones. They are treacherous, and of great stature, most give them the name of Giants.

"The second of February, about nine of the clocke in the morning, wee descried land, which bare South-West of us, which we looked not for so timely and comming neerer and neerer unto it, by the lying, wee could not conjecture what Land it should be, for wee were next of anything in 48 degrees, and no Plat, nor Seacard which we had, made mention of any land, which lay in that manner, neere about that height. In fine, wee brought our Lar-boord tackle aboord, and stood to the North-east-wards all that day and night, and the winde continuing Westerly and a faire gale, we continued our course alongst the Coast the day and night following. In which time we made account we discovered well neere threescore leagues off the Coast. It is bold, and made small shew of dangers. The land is a goodly Champion Countrey, and peopled; wee saw many fires, but could not come to speake with the people; for the time of the yeere was farre spent to shoote the Straits, and the want of our Pinnasse disabled us for finding a Port or Road; not being discretion with a ship of charge, and in an unknowne Coast, to come neere the shoare before it was sounded; which were causes, together with the change of the winde (good for us to passe the Strait) that hindered the further Discovery of this Land, with its secrets: This I have sorrowed for many times since for that it had likelihood to bee an excellent Countrey. It hath great Rivers of fresh waters; for the out-shoot of them colours the Sea in many places, as we ranne alongst it. It is not Mountaynous, but much of the disposition of England, and as temperate. The things we noted principally on the Coast, are these following: the Wester-most point of the Land, with which wee first fell, is the end of the land to the Westwards, as wee found afterwards. If a man bring this point South-west, it riseth in three Mounts or round Hillockes: bringing it more Westerly, they shoot themselves all into one; and bringing it Easterly, it riseth in two Hillockes. This we called Point Tremountaine. Some twelve or fourteene leagues from this point to the Eastwards, faire by the shoare, lyeth a low flat Iland of some two leagues long; wee named it Faire Iland; for it was all over as greene and smooth, as any Meddow in the Spring of the yeare.

"Some three or foure leagues Easterly from this Iland, is a goodly opening, as of a great River, or an arme of the Sea, with a goodly low Countrey adjacent. And eight or tenne leagues from this opening, some three leagues from the shoare, lyeth a bigge Rocke, which at first we had thought to be a ship under all her sayles; but after, as we came neere, it discovered it selfe to bee a Rocke, which we called Conduit-head; for that howsoever a man commeth with it,

it is like to the Conduit-heads about the Citie of London. All this Coast so farre as we discovered, lyeth next of any thing East and by North, and West and by South. The Land, for that it was discovered in the Reigne of Queene Elizabeth, my Sovereigne Lady and Mistris, and a Mayden Queene, and at my cost and adventure, in a perpetuall memory of her chastitie, and remembrance of my endevours, I gave it the name of Hawkins Maiden land. . . . the Westermost part lyeth some threescore leagues from the neerest Land of America.

"With our faire and large wind, wee shaped our course for the Straits, and the tenth of February wee had sight of Land, and it was the head-land of the Straits to the Northwards, which agreed with our height, wherein wee found our selves to bee, which was in 52. degrees and 40. minutes."

It is difficult to conceive how any one reading the narrative of Hawkins can fail to be impressed by its lucidity. It was, we believe, written shortly after he was captured by the Spaniards, and certainly within a year of the occurrence of the events described. We have a reference in Purchas to the fact that Hawkins sent home a report of his voyage while in prison. The fact that publication did not take place until many years later, after his death, has led critics astray. Admiral Burney drew attention to some obvious but explicable errors in the text, but it was reserved to Commander Chambers to suggest that the land seen by Hawkins cannot be identified with the Falklands, and that what he really saw and described was part of the mainland of America. The first land sighted and named Point Tremountaine might, according to Chambers, have been Tres Puntas in 47° 5′ south latitude. The writer ventures to suggest in turn that such difficulties as may be found in identifying Hawkins' Maiden Land with the Falklands are in no way comparable with the impossibility of reconciling the theory put forward by Commander Chambers and the details given in the narrative of Hawkins.

Identification of the group depends to a great extent on the identity of the land which Hawkins first sighted. As we have seen, he says, "The Westernmost Point of the land with which we fell, is the end of the land to the Westwards, as we found afterwards." Nothing could be more explicit. The last four words clearly indicate that the land was seen twice, the second time from the westward. To find the westernmost point of the country from a sailing ship on the east coast of the mainland of South America was beyond even Hawkins. Chambers unfortunately assumed that the only land in the Falklands which can be made to fit in with the description of Point Tremountaine given by Hawkins is part of Pebble Island, which lies some 50 miles to the east of the Jason Islands. Basing his criticism on a false assumption, he has no great difficulty in showing that Hawkins could scarcely have visited the Falklands, his admirable description of the lie of the country, of the Falkland Sound, and of the Eddystone Rock, named Conduit Head and pictured as a ship under full sail, notwithstanding. To prove the claims

of Hawkins it is necessary to reconstruct his track in the light of present-day knowledge from the neighbourhood of Rio de Janeiro to Point Tremountaine and thence to Cape Virgins at the entrance to the Straits of Magellan. The writer is for this purpose entirely indebted to Captain Conor O'Brien, whose recent navigation of the world in a small vessel entitles his professional opinion to respect; he spent some months in Falkland Island waters in the course of his voyage, and took much interest in the question under review.

It does not appear that Hawkins sighted any land after leaving Isla Grande until he reached the Falklands. The voyage was without incident for the first part, in the course of which he was able to determine his compass variation. When in about lat. 35° S. and long. 51° W., he was driven south by a storm for two days. Estimating his speed under bare poles at 7 or 8 knots, this would have brought him to say 41° S. and 53° W., whence he shaped his course for the Straits (about S. 40° W. true) till he reached lat. 49° 30′ S. in about long. 62° W. He was then driven to the westward. It is clear that he did not visit Port San Julian, although he makes a brief reference to it. He had already passed the latitude of that port, and the lateness of the season prohibited delays without good reason. He took advantage of the first shift of wind to recover his direction, approaching the Falklands (lat. 51° S., long. 69° W.) from the north-east. The only land appearing on any of his charts so far south and to the east of the Straits would have been an extension of Terra Australis, and he was too far north for this. It is certain, at all events, that he could not have been or imagined that he was in the latitude of 48°. How so obvious an error got into the text is immaterial. It may have been a mistake for 50° 48′ if the cross-staff used by him was divided into minutes.

It is possible that, as a strong westerly breeze was blowing, he was unable to weather the point of land first seen by him and afterwards determined to be the most westerly point. The only possible end of the land to the westward which one can approach from the north-east is the Steeple Jason. This is the outlying island of a small group now known as the Jasons, lying at the extreme north-west point of the Falklands. The Steeple Jason seen in one with Grand Jason does make 3, 2 or 1 hill as the point named Point Tremountaine by Hawkins is described in his narrative. At all events he tacked and stood out on a north-east course to sea until the following morning, when, as the wind remained constant, he took the opportunity of examining the north coast of the land. He estimates that he discovered nearly 60 leagues of coast. He does not state that he sailed that distance; the most he could do was to conjecture the length of coast-line.

On the morning of February 4 the wind veered to the north-east, and he was able to retrace his course and take his departure from Point Tremountaine for Cape Virgins, which he reached on the 10th, estimating

the distance from the land discovered to the nearest point of the mainland at 60 leagues. Certainly this is an underestimate; but Frezier's map of the area, drawn about 125 years later with a much fuller knowledge, scales the distance at under 200 miles.

If the evidence that the course taken by Hawkins was between the Falklands and the mainland is otherwise insufficient, reference may be made to the short account, hitherto neglected, of the voyage as recorded by a captain who accompanied him. The following is the report made by Captain Ellis, as published by Purchas:

"A briefe Note written by Master John Ellis, one of the Captaines with Sir Richard Hawkins, in his Voyage through the Strait of Megelan, begunne the ninth of Aprill 1593. . . .

"The second of Februarie, 1593, (1594 N.S.) wee fell with the land of Terra Australis, in 50. degrees fiftie five leagues off the Straite of Magelan, which land lay East and by North, or East North-east from the Straite, which is a part of Terra Australis: from which Land wee entred the Straite upon the West South-west course."

It is hardly necessary to mention that Terra Australis was the great southern continent of which Tierra del Fuego was believed to be part, prior to Drake's discoveries, and which according to maps extended east and north of the most southerly point of the Americas. It appears that Hawkins, or at least his companions, thought that the land discovered was part of this continent.

In conclusion, the errors of Hawkins' narrative are analysed separately in order to ascertain whether they provide justification for rejecting his claims:

(1) "Wee were next of anything in 48 degrees," *i.e.* when land was first sighted. The writer is quite prepared to concur with M. Groussac when he says that "à cette epoque et de la part de marins experimentés une erreur de latitude depassant 3 degrés n'est pas admissible." Hawkins' narrative was sent home while he was in prison. It was published many years later and some six months after his death: a mistake in a figure may easily have passed. To assume that 48 degrees was intended involves a contradiction of course and distance to and from the land discovered. He had already reached the latitude of 49° 30′: he was directing his course for the Straits of Magellan, and at that point he met with westerly winds. There was no shadow of suggestion that he was blown or carried back on his course.

(2) "The Land is a goodly Champion Countrey, and peopled; wee saw many fires, but could not come to speake with the people." Let M. Frezier, who published the first unquestioned map of the Falkland Islands in his book 'Relation du Voyage de la Mer du Sud,' published in Paris in 1732, bear witness here: "These Islands," he says, "are certainly the same which were discovered by Sir Richard Hawkins in 1593. Being to the east of Cote Deserte he was cast by a storm on an

unknown land; he coasted along this island for about 60 leagues, and saw fires which made him believe they were inhabited." At the present day there are inhabitants of the outlying islands of the Falklands who have seen fires on uninhabited tussac islands which have been undoubtedly caused by lightning. It is true that lightning is not common, but it is not unusual in the month of February, when the grass is at its dryest towards the end of the Antarctic summer. The appearance of many fires would, if the above proposition is accepted, naturally result from any considerable extent of fire showing through the high and dense tussac bogs.

(3) "It has great Rivers of fresh waters: for the outshoot of them colours the sea in many places." The deduction again here is of fresh waters from discoloration. The appearance of the land certainly can support the supposition of rivers. Falkland Sound is as described by Hawkins, a "goodly opening as of a great river." Occasional discoloration which is probably caused by strong tidal streams has been observed by present-day mariners in these waters.

(4) "It is . . . much of the disposition of England and as temperate." This was the opinion of Hawkins based on experience of three days. The writer has found frequent occasion during a residence of several years in the Colony to justify this description.

(5) ". . . to the Eastwards, faire by the shoare, lyeth a low flat Iland of some two leagues long; wee named it Faire Iland." This has not been easy to identify, but it is quite possible that the reference is to the eastern end of Pebble Island, which, joined by a very narrow neck of land to the hilly portion, shows both low and separate from it.

While there is no reasonable doubt that the honour of first sighting of the Falkland Islands lies with John Davis, who was blown in among unknown islands in this vicinity on 14 August 1592, but gave no description of them, it may be said to be as certain that Sir Richard Hawkins was the first to give any account of the group, as it is unquestioned that Captain Strong in the *Welfare* ninety-six years later was the first to make a landing.

THE QUESTION OF PRONUNCIATION TABLES FOR BRITISH SHEETS OF THE INTERNATIONAL MAP

J. H. Reynolds, Secretary P.C.G.N.

Read at the Southampton Meeting of the British Association, Section E, Geography.

AMONG the Resolutions of the Second (or Paris) International Conference on the Map of the World on the scale of one-millionth was the following (No. 9 d):

"Each sheet shall have an explanatory table showing the Latin

characters which best represent, in the three languages in which the Resolutions of the London Conference were printed, the phonetic value of the letters used on the sheet." The three languages referred to were English, French, and German; and the Resolution is more explicit than the corresponding Resolution, No. 8 d, of the First (or London) Conference, which ran as follows: "An explanatory legend shall be printed to show, with reference to the names on the sheet, the Latin letters which are necessary to represent the same sounds in other languages employed in the international map."

Now these pious Resolutions have never been fulfilled on any of the sheets of the 1/Million Map so far published, with one exception, and that was the experimental sheet "Istambul (Constantinople)" issued by the War Office. On this sheet were printed short tables illustrating the chief peculiarities in the pronunciation of Rumanian and Bulgarian; but unfortunately the Rumanian table is incomplete and partly out of date, while the Bulgarian names were for some reason printed in Latin characters as employed in the Croat language instead of being transliterated from the Cyrillic characters in the same way that the Turkish names on the sheet were transliterated from the Arabic. Still, although these particular tables are now practically useless, they did show the way to compilers of future sheets; but that is as far as the International Map has ever gone in carrying out the foregoing Resolutions.

It would however be unreasonable to accuse foreign nations of being backward in this respect while we ourselves have nothing of the kind to show on the published sheets which cover Great Britain. At the same time it is easy to understand why the British compilers have fought shy of this subject, in view of the appalling character of the languages spoken in these islands. An honourable exception must be made in the case of Welsh, which has certain definite rules and sticks to them fairly consistently. But it is not possible in this short paper to do more than mention the Celtic languages; we must confine our attention to English —though if there *is* a language more difficult to pronounce than English it is Gaelic.

Difficulties of pronunciation are of two kinds. One is caused by the necessity of using the vocal organs to render sounds to which they are unaccustomed, a process known in popular parlance as "getting the tongue round a word." The ordinary Englishman holds up his hands in horror at languages like Welsh or Polish; but these are models of regularity, both in the sounds represented by the letters and also in the position of the stress. Once you know the rules, you know *how* to pronounce every word; the only difficulty sometimes is "to get the tongue round it," and this becomes easier with practice. In English the great stumblingblock to most foreigners in this respect is our "th," whether pronounced as in *think* and *myth* or as in *this* and *with*. But some of our vowels are also troublesome, notably the short *u* as in *put* for French-

men and the *aw* as in *law* for Germans. Every language must present a few difficulties of this kind to foreigners; that is one of the minor legacies of Babel.

A far more serious affair is the other difficulty, and that is irregularity of pronunciation. It is in this respect that we English have most cause to blush for our mother tongue. The pronunciation of most languages can be reduced to rules fairly easily, though in a case like French there are a great number of rules and a certain number of exceptions. But is it possible to lay down any rules for English? We may start hopefully on the task, but we soon find that our rules are swamped with exceptions.

Take the first letter of the alphabet. This may be long Italian ā, in Bath, Malmesbury, Shaftesbury, Market Harborough; it may be the peculiar English short ă in Southampton, Harwich, Stafford, Matlock, Halifax (pronounced in the north like short Italian ă—Hălifăx); it may be the long Italian ō (like our *aw*) in Salisbury, Marlborough, Bridgewater, Scafell; it may be the corresponding short sound in Warwick, Watford, Swaffham, Quantock; before *r* it may be the long Italian ē, as in Fareham, Knaresborough, Maryport, and once certainly it has the short *e* sound, in Thames; it may be the diphthong *ei* in Hastings, Gravesend, Cricklade, Avon, Cambridge; in rapid speech it is sometimes very like a short *i*, as in Reigate, Stevenage, though in unstressed positions it usually becomes the neutral vowel, as in Birmingham, Doncaster, Dunstable, Godalming, Newark, Ilfracombe. That makes nine different sounds for our letter *a*, apart from its combinations with other vowel letters, *w*, and *y*. The rest of the vowels are almost as bad; and at a conservative estimate our vowel letters, with their combinations, provide material for seventy separate rules. A noticeable feature is the English fondness for the neutral vowel sound, which can be represented by all the vowel letters, and by one at least of their combinations; for example, Kirkham, Ulverston, Loughborough. Another striking fact is the absence in our language of the continental long ē sound except before the consonant *r*, when it is common. This vowel is often confused with the diphthong *ei*, which is common in English, except before *r*. The two sounds may be illustrated by the difference between the English and Scottish pronunciations of the name Ayr; the English make it a pure long vowel Ēr, the Scots a diphthong Eir. Compare also the difference between French *abbé* and *abbaye*.

By comparison with the vowels, our consonantal letters are almost regular, or at all events not more irregular than the French. The chief trouble with them is that nearly all, and some of their combinations, may, without rhyme or reason, be mute. In addition we have a cheerful habit of suppressing whole syllables. We may laugh at the well-known jibe that the English spell a word as Cholmondeley and pronounce it Marchbanks; but how are we to expect the poor foreigner to pronounce

correctly names like Alresford, Worcester, Leominster, Wymondham, Brougham? He is not even safe in the case of derivative names. Although we speak of the river Thame (Teim), we say Temz, not Teimz. Again, on the brook called Cam there is a place called Cambridge. Other freakish pronunciations might be mentioned by the score—traps not only for the foreigner but even for ourselves.

Before leaving the subject of the difficulties of English pronunciation, let us see ourselves as others see us. Most geographers know the trials that beset us when we have to transliterate place-names in foreign languages that do not use Latin letters. Let us see what such languages make of our English place-names. The examination of maps of the British Isles in Arabic and Russian atlases is a most entertaining exercise. Arabic script is not illsuited to the rendering of English sounds, especially if the additional Turko-Persian letters are used for this purpose, as to some extent they appear to be. There are Arabic letters for both of our *th* sounds and for Celtic *ch* and *gh* (though the latter is not quite the same thing). About Arabic vowels there is a certain vagueness which gets over some of the difficulties. In a recent Egyptian atlas the British names are on the whole wonderfully well given, but it looks as if a Frenchman who thought he knew English had been consulted. It must be noted that the Arabic letter ج (jīm) is used with its Egyptian sound of hard *g*, though the Persian letter گ was available for that sound. The result is that for our *j* sound (as in *George*), the atlas uses the Persian letter چ =*ch*, and for our *ch* falls back on Arabic ش=*sh*. The vowels have gone wrong in كرليل = Karlīl, نيوكسل = Nyūksil, هبرديز = Hībrdīz. The name "Greenwich" is given on an Arabic wall-map as غرينويش = Ghrīnwīsh, though it could have been rendered correctly in Persian گرنيچ = Grīnīch.

The compiler of the British Islands sheet in Marks' Russian Atlas evidently thought that English was a language more or less subject to rules. The result is that he gets into terrible trouble with his vowels. It is certainly difficult to render in Russian the neutral vowel sound when it is stressed; but the other vowel sounds can be given fairly well. When in doubt about a vowel sound he generally falls back upon the letter "э backwards," a long *ē*, which, except as a demonstrative, is foreign to pure Russian, or on ё, which is pronounced *yaw* and always stressed.

He uses с (=*s*) to represent both our *th*'s though т would have been better, and is used in the Russian for words like ethnography, theology. Though the letter х, a mild *kh*, would give our *h* sound fairly well, Russians will persist in rendering *h* by г=*g*, simply because г is pronounced as *h* in Ukrainian, and the corresponding letter in Czech and Slovak actually is *h*; compare Grad and Hrad, Praga and Praha. The general result is that the names of many places in this Russian map can only be guessed by their position. Without such a guide it would be

difficult to spot the originals of Гайс (Gais) = Hythe, Гэйс (Gēis) =Hayes, Бэс (Bēs) = Bath, Уаймус (Uaimus) =Weymouth, Уэндсуорс (Uēndsuors)=Wandsworth, Элвёрстон (Ēlvyórston)=Ulverston. Some natural mistakes are Нюнитон (=Nyuniton) for Nuneaton, Тайвертон (=Taivyerton) for Tiverton, Байдфорд (=Baidford) for Bideford. Some examples from Scotland are Эбёрдин (=Ēbyórdin) for Aberdeen, Дёнди (=Dyóndi) for Dundee, Россэй (=Rossēi) for Rothsay, Скэй (=Skēi) for Skye, Мыс Рас (=Mis Ras) for Cape Wrath; while the map of Ireland contains the following gems: Дёндэлк (= Dyóndēlk) for Dundalk, Эслон (=Ēslon) for Athlone, and Эдзенри (=Ēdzenri) for Athenry.

Now it is certain that an Englishman knowing Russian could have made very much better attempts at rendering these place-names than those appearing in the atlas, which prove, if nothing else does, that each name must be treated separately, and that any attempt at framing Rules for the Pronunciation of English must be hopeless. We simply cannot construct an explanatory table on the lines of the Rumanian table on the Istambul sheet; for one thing, the map would be lost in a sea of marginal explanation.

Can nothing be done, however? Would it not be possible to print a booklet, with the pronunciations of all the names appearing on the British sheets of the International Map, the pronunciations to be in three columns, English according to the R.G.S. II. system, French, and German? It may be objected that this is not carrying out the Resolution, which seems to imply that the explanatory table shall be actually on the sheet itself. Now it so happens that parts of Great Britain appear on no less than seven sheets of the map. Could not a list of the most important names and those which a foreigner is most likely to mispronounce be given in the margin of each sheet with their approximate French and German equivalents? In a heavy sheet, like the Edinburgh sheet, a careful selection would have to be made; but this at least would be an attempt at carrying out the Resolutions, practically in the letter and certainly in the spirit. One great advantage that such a list of names would have over a mere table of letters would be that the stress would be marked. This is an important point, often overlooked. For example, the lists of names issued by the Geographic Board of Canada would benefit greatly by a few indications of the pronunication and especially of the stress, which sometimes comes in unexpected places, as in Temískaming, Timágami.

The first criticism of this scheme that is bound to be made is, Can you express English pronunciations in French and German? Can you even express them in the R.G.S. II. System? Now the R.G.S. II. System does not profess to be more than an approximate system. It does not go into elaborate phonetics, using Greek and Icelandic letters, or letters printed upside down. It merely aims at giving the ordinary

individual a fair idea of how to pronounce strange names. It should certainly be able to do this with English, Welsh, and Gaelic names. The French and German columns in our List would in the same way give only an approximate rendering in those two languages, in the manner of the Pronouncing Dictionaries. Any renderings suggested here are not claimed for a moment to be necessarily the best possible. In any case, all provisional renderings would have to be tried on Frenchmen and Germans and amended to get the pronunciation nearest to the native.

And for the native, in the case of English, it would be best to give the pronunciation of the ordinary educated and well-informed Londoner. You cannot very well teach a foreigner to speak of Newcásstle and Baacoop. That is to say, provincialisms should not be allowed, though occasionally an alternative might be given where more than one pronunciation is in common use. For instance, the name Southampton is variously pronounced South-hampton, Sŭthampton or even Sŭdhampton. In some names the stress is sometimes heard on one syllable, sometimes on another, notably in the case of the Cumberland names Carlisle, Penrith, and Whitehaven, which in the north are always stressed on the first syllable, but in the south usually on the second.

It remains to make a few suggestions for rendering our most difficult sounds into French and German. For those which are utterly foreign to one or both of those languages, something would have to be devised, which, without going outside the Latin alphabet, would be intelligible to the ordinary educated foreigner; and there would have to be a few preliminary notes to explain these symbols.

For the two sounds of our *th*, it would be simplest to write *th* and *dh* in italics (to call attention to the fact that they are not native sounds), with a preliminary note to explain that *th*=Greek θ, Icelandic þ, Arabic ث and *dh*=Greek δ, Icelandic ð, Arabic ذ. The neutral vowel in unstressed positions might be shown by italic *e*, with a note that this represented French *e* in *je* and German final *e*. But in stressed positions this would not do, at all events in French, where the placing of an accent over *e* completely alters the sound. In such cases we might write ɛ̃u for French, and ŏ for German. The sound of *aw* is rather difficult to deal with; we might use ō, with a note that it represented *o* in French *nord* and in German *Forst* lengthened. For our own long ō, which is really a diphthong *ou*, there is of course *au* in French, and *oh* might do in German. There would certainly have to be a note to call the attention of the French to the fact that the letters *n* and *m* were never to be nasalized. The French have to resort to a note of this kind in their 'Rules for the Transcription of Native Names in Arabic and Berber.'

Other English sounds could be given in French and German without preliminary notes, the fewer of which the better. Our *j* sound is given approximately by *dj* in French and by *dsch* in German. *Dj* in German

would be required for the sound of *dy*, as in Dewsbury. Sharp *s* must be given by *ss* in German. The peculiar southern and eastern English *a* as in *fat* and *man* would probably be given best by *ă*, though the true short continental *ă*, as in French *patte* and German *mann*, is not exactly the same thing; in the north, however, this sound becomes a true short *a*, as in the local pronunciation of Patterdale and Manchester. It might be rather confusing to the French to explain that the southern sound is practically the sound of *i* in the French " in " without the nasalization, and to the Germans to represent it by the R.G.S. II. symbol ä.

We should probably have to make a liberal use of brackets and hyphens. But the best way to illustrate the system, if you can call it a system, is to give some examples. These must be regarded as merely tentative efforts, which can, no doubt, in some cases be improved upon. No single person can determine these things.

	R.G.S. II.	*French.*	*German.*
Birmingham	Bŏrming-*em*	Beûrming-*em*	Bŏrming-*em*
Cambridge	Keimbrĭj	Quaimebrĭdj	Keembrĭdsch
Colchester	Kŏlchĕst*er*	Quaule-tchĕst*e*-r	Kóhltschĕsst*er*
Hythe	Haidh	Haïdh	Heidh
Lincoln	Lĭng-k*en*	Lĭng-qu*e*-n	Lĭng-k*en*
Loughborough	Lé-fb*e*-r*e*	Lĕûfb*e*-r*e*	Lŏfb*e*-r*e*
Royston	Roist*en*	Roïsset*e*-n	Reusst*en*
Salisbury	Sáwlzb*e*rĭ	Sólzb*e*-rĭ	Ssólsb*e*-rĭ
Southampton	Sauthămpt*en* / Se-thămpt*en*	Saou*th*ămpt*e*-n / Se-*th*ămpt*e*-n	Ssau*th*ămpt*en* / Sse-*th*ămpt*en*
Worcester	Wŭst*er*	Ouoûsset*e*-r	Uŭsst*er*

SAXTON'S GENERAL MAP OF ENGLAND AND WALES

Sir H. George Fordham

CHRISTOPHER SAXTON has long been famous for his collection of thirty-five maps of the English and Welsh Counties, of which individual maps bear various dates from 1574 to 1578, and the general map of England and Wales and the frontispiece of the work itself are dated 1579; but he has never, apparently, been credited with the authorship of a large general map of the Kingdom and Principality.

Such a map, in no less than twenty sheets, nevertheless exists, much amended and altered towards the end of the seventeenth century, and disguised under the new title of " The Travellers Guide being the best Mapp of the Kingdom of England and Principalaty of Wales." It measures, as a whole, about 5½ feet in width by 4½ feet in height, and the scale, as compared with modern measurements, appears to be one of between 7½ and 8 miles to the inch.

Upon an examination of the few known copies of the seventeenth-century examples of this map, it seems incontestable that they are impressions from original plates by Saxton, subjected to very important and detailed alterations and additions.

Of these copies, three (one of them in the collection of this Society) are of an issue by Philip Lea, whose name appears upon them, and they are therefore of the latter part of the century; a fourth bears the names of T. Bowles and John Bowles & Son, and this last must thus have been published not earlier than about the middle of the eighteenth century. The map is, in fact, advertised by Thomas Bowles as early as 1720, and appears in catalogues of the Bowles publications continuously up to at least 1746, and in that of Robert Sayer as late as 1763.

Lea published an atlas made up, in large part, of impressions from Saxton's plates of the county maps of England and Wales of 1579, about the year 1689, the Royal arms on the map of England bearing W.R., for William III. Similarly, the general map now in question bears J.R., for James II., and will therefore not be later than the preceding year. We have thus a very closely approximate date for Lea's publications from Saxton's plates.

On this and subsequent issues great changes have been made from the original. The main and cross roads are inserted, largely, after John Ogilby (whose *Britannia* had been brought out in 1675), as appears from the title; the designs representing towns have been enlarged; the Isle of Man has been entirely redrawn, and the shading round the coast-line has been much strengthened and details of islands and shoals have been added. A large number of original designs of ships at sea have been erased, and in most cases have been replaced by ships of the end of the seventeenth century, some of them of large size.

The original title and other particulars filling the right-hand top corner of the map have also been removed, and a very large and ornamental design of the Royal Arms, with other details, has been substituted for them.

In the right-hand bottom corner, the coat-of-arms of Thomas Seckford (Saxton's patron) has been similarly erased, and a panel, with dedication to Peter, Bishop of Winchester, is inserted. This was Peter Mews, Bishop from 1684 to 1706. Other panels and tables have been freshly engraved on the map. One, in the left-hand bottom corner, is signed "S.N.", *i.e.* Sutton Nichols, an engraver of the period.

On the left-hand side of the map, two long panels, of the Saxton period, with historical text in Latin, remain, and in the left-hand bottom corner a figure of open compasses and a scroll bearing: "*Christophorus Saxton descripsit*"—a characterictic design of the Saxton map of the sixteenth century—remains also.

Further evidence is, fortunately, available to establish the original

provenance of this map. The fifth known impression, preserved in the British Museum, appears to be quite conclusive on this point. It is believed, from comparison of the paper and its watermarks, that this is not an impression of the sixteenth century, but one taken as a trial plate, or "pull," by Lea, in view of the changes he was making for his own edition of the map.

The original version of the Isle of Man and of the coast-line details are found upon it, while the roads are inserted. The whole of the right-hand top corner is blank, and the original panels on the left side of the map, already referred to, are blocked out, to reappear, however, on the Lea version when finally printed. In the right-hand bottom corner appear the arms of Seckford, already mentioned, very elaborately drawn. Along the margin, near the left-hand bottom corner, is a statement that the map is drawn on the meridian of the most easterly island of the Azores: "*Longitudinis gradus ab eo Meridiano capiunt initium qui per divæ Mariæ Insulā transit quæ omniū Azareas maxime ad Orientem vergit.*" Finally, the sea is decorated with all the original ships, which are clearly Elizabethan.

Latin is used throughout for the names of the seas and of the adjacent countries.

It should be added that the degrees and minutes of latitude and longitude are very clearly shown in the border, the lines of degrees being ruled across the map. The longitude of Greenwich is shown as 23° 32″ E., while the true difference between the Island of Saint Mary and Greenwich is 25°, almost exactly. In the choice of such a starting-point of longitude this map is possibly unique.

When place-names are compared on a section of the map with those on the area covered by one of Saxton's county maps—Herts, 1577, for instance—they are found (with the exception of parks) to be identical in the two versions, with but a few trifling variations in the spellings.

Thus we seem to have all the particulars and details, except those of the original title in the right-hand top corner, preserved, and even in this one case some outlines and a trace of many lines of writing in Latin remain distinguishable. It must be assumed, therefore, as indubitable, that to Saxton is to be attributed this large and important map.

Its exact date must be rather in doubt, but about 1580 may be regarded as probable. The date of Saxton's death does not appear to be known. That of Seckford was in January 1587–8.

It seems inconceivable that Saxton's twenty plates, making up this large map, should have been engraved and laid aside, and that no impressions should have been taken from them for sale by him, or any subsequent owners of these plates, during the period of at least a century which elapsed before they appeared transformed from the press of Philip Lea; but it is equally strange that, if Saxton published the map

towards the end of the sixteenth century, no copies of the original should now be known to exist, and even that no reference is made to this work in any biographies of Saxton as a cartographer. It is to be noticed in this connection that the licence obtained for Saxton by his patron Seckford, in 1577, granted him the exclusive privilege of selling a general map of England and Wales, as well as maps of individual counties, for a period of ten years.

That maps, and especially large maps in many sheets, prepared for hanging on walls, have disappeared in an extraordinary manner is one of the perplexities of the carto-bibliographer, and may explain the present case, which is certainly a curious one, and is now noticed chiefly in the hope that, by drawing attention to the problems involved, copies of this important map in their original sixteenth-century state may be discovered, or at least that some other clues to its original marginal details, and especially to its title and date, may be found.

ARCHÆOLOGY AND THE ORDNANCE SURVEY

O. G. S. Crawford

Extracted from the paper read at the Southampton Meeting of the British Association, Section E, Geography.

AT present considerable attention is being devoted to the archæology of Scotland, where the 1-inch revision is proceeding. Owing to the new method of partial revision of counties, work is proceeding rather more under subjects and periods than areas, the main headings being "Megalithic and Roman Remains." As these are gradually exhausted —speaking from a topographical point of view—other subjects will of course be taken up. This method has the advantage of leading up comparatively quickly to the publishing—or perhaps I should say the possibility of publishing—small-scale period maps, like that of Roman Britain, issued last year. A new edition of this map is being prepared, and will be published in two parts on a larger scale (10 miles instead of 16 miles to the inch). This will show the military and civil areas of Roman Britain, each on a separate sheet. The basis will be the new 10 miles to inch O.S. map, which is about to be published. In addition to the usual information, the sites of villas and villages will be shown. The original 1/M map, now available, will of course still be sold, but instead of adding to it much new information, with the risk of overcrowding, it will merely be kept up to date.

A collection of photographs of old plans is being formed. By old plans are meant those on a scale usually between the 6-inch and 25-inch O.S. maps. Such old maps as are to be found in old estate offices are borrowed and photographed by the O.S. Apart from their general archæological

value and the certainty that many of them will be destroyed, they are invaluable for reference, for the location and preservation of old names, and in a great many other ways. Over a hundred have already been photographed, and it is hoped shortly that they will be bound up and placed in the library, where they will be available for consultation.

Air photography has been used during revision of archæological features, and has provided a valuable and economical check in many instances. It cannot, however, be divorced from field-work. Its principal use is to reveal new sites, to disentangle complicated or mutilated earthworks, and to assist the plotting in the field of remains (such as lynchets) on the open downs where detail is rare. I am speaking of archæological remains, and of such only. I am not speaking at all of the other and more important work of the Survey—which has been already dealt with by others. Archæology is a subsidiary part of this revision, and air photography plays a subsidiary part in this archæological revision.

When we compare our Ordnance Maps with the official maps of other countries, we are struck by the almost complete absence of archæological entries on the foreign maps. As a rule only the largest and most obvious things are marked—things one can see for miles, like the ruins at Mont Majour, in Provence. The Neolithic burial grottoes close by—far more interesting and extremely difficult to find in the scrub—are not marked. Both the policy of insertion and that of omission have reacted upon the study concerned. In no European country does field archæology *exist* to-day. There is no such thing, as we know it. That is either because archæologists cannot find the sites, except under guidance, or because they have no plan of the site on a large-scale map. One cannot be always making one's own plans of hilltop camps, and a plan of one on the scale of 1/80,000 is of course an absurdity. I believe that in Bavaria, under the ægis of Professor Reinecke, some beginning is being made; but they are still where we were in this respect about a hundred years ago. I do not know a single book by a foreigner comparable with Mr. Allcroft's 'Earthwork of England,' Dr. Christison's 'Early Fortifications in Scotland,' or the books of Mr. Sumner and Dr. Williams-Freeman on the earthworks of Hampshire. There are a few articles in journals, with painfully bad diagrams—not plans; and that is all. There are no scholarly studies of the earthworks of a district or country.

It is pleasant to record the pre-eminence of Great Britain in this branch of science: that pre-eminence existed as much ten years ago and more as now, and was due to the existence of our large-scale O.S. maps, and the marking of antiquities upon them. We are, too, the first country to publish an official small-scale period-map of a purely archæological character; there has been much talk about such projects

abroad, but so far nothing has come of it. Meanwhile our first venture has fully justified itself, and so made the way easier for other similar publications.

THE KALAMBO FALLS

IN the summer of 1913 a party organized by the late Mr. James Scott-Brown left the Cape in a motor car with the intention of getting through to Cairo. One member of the party, Captain R. N. Kelsey, was wounded by a leopard and subsequently died; other members fell ill; and eventually it was necessary to abandon the car. But Mr. Scott-Brown with one companion, Count Comegliano, pushed on through north-eastern Rhodesia into German East Africa, where on the outbreak of war they were made prisoners and suffered great hardships, which resulted in the illness of Mr. Scott-Brown and his death in 1924. Among his photographs were negatives labelled "The Kalambo Falls"; and among his papers the following note:

"The Kalambo Falls, the most remarkable in the world. Here the Kalambo river, which divides the territories of now British East Africa and Rhodesia, takes a header over a precipice, making a sheer drop of 1200 feet. . . . A further drop of about 200 feet takes place about 400 yards from the base of the main fall. So far no one has succeeded in reaching the base."

We are indebted to Mrs. Scott-Brown for this information, and for permission to use the negatives.

The remarkable interest of these falls to us is that they seem to be hitherto unrecorded, although they are on the Kalambo river, which is the boundary between Northern Rhodesia and Tanganyika Territory, which was demarcated by British and German Commissioners in 1898 (see paper by Captain Boileau, R.E., *Geogr. Journ.*, June 1899, 13, 577). Colonel Sir Charles Close, who was Chief British Commissioner, has kindly examined his diaries; the only passage bearing upon the question seems to be this under date 18 October 1898: "Chingambo village to junction of Kalambo and Samfu rivers—7 miles. . . . Found Scratchley and Peacock and party already encamped. They went down to the lake and Kalambo mouth and spent a night there. Very steep gorge near lake. Canoes can go up for one mile from lake."

It is possible, or even probable, that the fall is in this gorge; and yet curious that no word of it from the native carriers came to the officers of the Commission, even if on the way down to the lake they found it impossible to follow the river closely. A note in Mr. Scott-Brown's diary seems to imply that the fall is not far from Abercorn, and this is against the possibility that it is higher up the Kalambo, in what was German territory. Moreover, the spot height 1230 metres is found on

THE KALAMBO FALLS

COMPOSITE PHOTOGRAPH OF THE KALAMBO FALLS

the German 1/300,000 map close to the river and only some 7 kilometres up from the lake: so there is opportunity for a good fall here. Mr. Scott-Brown's note on the falls does not suggest that they were anything but well known, and his figure of 1200 feet reads as if that were the accepted height: yet we can find no reference to the falls in geographical literature. It will be strange if they really are near the mouth of the Kalambo, halfway between Abercorn and Kasanga (late Bismarckburg), and well known locally, yet undescribed; and we shall be glad to receive any further information.

THE THIRD MOUNT EVEREST BOOK

The Fight for Everest: 1924.— **Lieut.-Col. F. E. Norton, D.S.O.,** and other Members of the Expedition. London: Edward Arnold & Co. 1925. Pp. xi. + 372. *Maps and Illustrations.* 25*s. net.*

'MOUNT Everest, The Reconnaissance, 1921,' was the attractive introduction to 'The Assault on Mount Everest, 1922,' and one hoped then, almost with confidence, that the third volume would bear another title, the last of a triumphant triology. *Sed dis aliter visum.*

In his Introduction Sir Francis Younghusband insists again on the value of this great adventure; he will find few readers who are unconverted. The narrative begins with General Bruce's account of the preparations at Darjeeling, an appreciative sketch of the several members of the party, and a description of the well-known journey to Phari. And then the first misfortune overtook the Expedition: a sharp attack of malaria laid the General on his back, and he was forced to hand over the leadership to Colonel Norton. "Naturally this . . . was a terrible disappointment to me, but there are compensations for everything, and my compensation was Norton. Let me say at once that even if I had continued with the Expedition there was no step taken by Norton, no order issued by him, and no decision made by him of which I should not have been proud to have been the author." General Bruce's generous confidence was abundantly justified; the further conduct of the Expedition could not have been in better hands. It is no disparagement of the leaders of the two former expeditions to say that Colonel Norton at least equals them in his descriptions of the country and in his narrative of things done. He writes with an evident enjoyment, a keen observation, and a fund of humour which lightened what must often have been an irksome task. Many people will remember his despatch to the *Times*, dictated when he was suffering from snow-blindness and shocked by recent tragedy. His single failing is an occasional confusion of his right hand with his left. To a reader who tries to visualize the country as he follows the narrative, it is disconcerting to be told that from Kampa Dzong "Eastward the fine shapes of the Gyankar range merge into the giants of the Mount Everest system"; and again, those six stupendous mountains, Gosainthan, Cho Uyo, Gyachung Kang, Mount Everest, Makalu, and Kangchenjunga—one cannot forego the luxury of repeating their sonorous names—run not from left to right, but contrariwise, when seen from the Pang La.

The history of the Expedition from the time of its arrival at the Rongbuk Base Camp until its final departure thence is so well known that it need not

be outlined here. At the outset the desertion of fifty-two of the locally recruited carriers seriously disorganized the formation of the first three camps. The approach to the North Col was found to be more difficult than in former years, and then the weather went from bad to worse. Four porters were marooned at Camp IV. and had to be rescued with infinite labour and at great risk by three of the climbers, and then a retreat was made to the Base. These preliminary rebuffs certainly damaged beyond hope the *moral* of many of the porters—out of fifty-five only fifteen were pronounced fit for the high work to be done later—and it can hardly be doubted that their efforts in rescuing the porters taxed the climbers more than they could afford. Over all brooded the menace of the foul weather, the worst that had been known in the Eastern Himalaya for many years. Was this the beginning of the monsoon, or was it not? As a matter of fact it was not, but the doubt and anxiety took their toll of the climbers' nervous energy. When at last the weather cleared and a second start was made, nearly a fortnight after scheduled time, the higher camps were established and the attempts on the summit made in astonishingly quick time. Arguments for and against the use of oxygen have been published in this *Journal*; it need only be noted now that the man who had climbed successfully with it in 1922 found it much less helpful in 1924, and that it is the considered opinion of all the surviving climbers that the ascent of Mount Everest is possible without the use of oxygen.

Colonel Norton and Mr. Odell write with admirable feeling and restraint of the two great attempts on the summit and of the final tragedy. Mr. Odell is firmly of the opinion that the last assault achieved its object. The sudden snow-blindness which beset Colonel Norton on his great climb suggests a possible solution of what is likely to remain a mystery. Nothing was wanting in preparation to ensure success, but the adventure will always be a gamble, depending finally on a continued spell of fine weather for three days at least in the regions above the Chang La. None knew this better than Mallory, who concluded his account of the reconnaissance of the mountain in 1921 with the following paragraph:—

"In all it may be said that one factor beyond all others is required for success. Too many chances are against the climbers; too many contingencies may turn against them. Anything like a breakdown of the transport will be fatal; soft snow on the mountain will be an impregnable defence; a big wind will send back the strongest; even so small a matter as a boot fitting a shade too tight may endanger one man's foot and involve the whole party in retreat. The climbers must have above all things, if they are to win through, good fortune, and the greatest good fortune of all for mountaineers, some constant spirit of kindness in Mount Everest itself, the forgetfulness for long enough of its more cruel moods; for we must remember that the highest of mountains is capable of severity, a severity so awful and so fatal that the wiser sort of men do well to think and tremble even on the threshold of their high endeavour."

The second part of the book is a series of letters written by Mallory. The last letter ends: "We shall be going up again the day after to-morrow. Six days to the top from this camp!"

The third part of the book is occupied by most valuable chapters on Physiological Observation and Natural History by Dr. Hingston, Notes on Geology and Glaciology by Mr. Odell, and technical notes on equipment by various members of the party. In considering the all-important question of acclimatization, the case of Mr. Odell must be heavily underlined. Odell was one of the slowest in the party to acclimatize, but when once he had found himself there

seemed no limit to his capabilities. In twelve days he slept eleven nights above 23,000 feet, and made one ascent to 25,200 feet and two ascents to Camp VI. at 26,800 feet, these last ascents being made in four consecutive days. Stress is very properly laid on the importance of comfort at the Base Camp and at Camp III., and (next time) at Camp IV. The increase in comfort in the 1924 Expedition over that of 1922 was as great as that of 1922 over 1921, and no man who has had experience of difficult travel will underestimate the value of comfort. Equally important are mobility and simplicity of "bandobast." The experiences of 1924 lead one to hope that the next expedition will be free of the loads and worries of the oxygen apparatus.

The volume is, like its predecessors, richly illustrated, and has for the first time eight plates in colour by Mr. Somervell. The Frontispiece ("Mount Everest from the Base Camp, 1922") is from the painting in oil which now hangs on the staircase in the Society's house; it required, perhaps, different treatment from the delightful sketches in body-colour on brown paper. The map, compiled during the last summer by M. Jacot-Guillarmod from photographs and Major Wheeler's survey, is a beautiful piece of mountain cartography, reproduced by the Ordnance Survey in a fairly successful attempt to give character to the map by a decorative border and by fine lettering of the title and legends. It is a great misfortune that the cartographer did not live to finish it westward and in the direction of Makalu. The "Panorama of the Route" might have had more names with advantage, and a sketch-map including the regions of Tingri and the Rongshar Valley would have added to the value of the book.

A. F. R. WOLLASTON.

REVIEWS

EUROPE

Two Vagabonds in Languedoc.— **Jan** and **Cora Gordon.** London: John Lane. 1925. $9\frac{1}{2} \times 6$, pp. x. + 242. *Illustrations.* 12*s.* 6*d. net.*

A Wayfarer in Hungary.— **George A. Birmingham.** London: Methuen & Co., Ltd. 1925. $7\frac{1}{2} \times 5$, pp. xvi. + 210. *Illustrations.* 8*s.* 6*d. net.*

A Wayfarer in Czecho-Slovakia.— **E. I. Robson.** With Illustrations by J. R. E. Howard. London: Methuen & Co., Ltd. 1925. $7\frac{1}{2} \times 5$, pp. xv. + 211. 7*s.* 6*d. net.*

The Naples Riviera.— **Herbert M. Vaughan.** 4th edition. London: Methuen & Co., Ltd. 1925. $7\frac{1}{2} \times 5$, pp. xi. + 319. *Illustrated.* 7*s.* 6*d. net.*

THOUGH hardly suggested by its title, the latest book by Jan and Cora Gordon is the result of a four months' sojourn in a small town in Languedoc. Writing throughout only of what they saw or heard, they present a clearly cut picture of French peasant life, touched in with humour and sympathy. With the enthusiastic advocate of peasant proprietorship, however, they have little patience; the system as they see it has little in its favour, while the peasant in their eyes is a compound of "vain shrewdness, covetousness, suspicion and self-satisfaction." Besides supplying many anecdotes of peasant character, their book throws interesting side-lights upon certain economic factors in French provincial life: for example, the employment of numbers of Spanish labourers on the railway, and the drift of the population towards the city. However alive the authors are to the shortcomings of this life, they are also appreciative of its advantages: "Amongst European countries we have visited," they conclude, "France seems the most free on the social side." Every page

of the book is entertaining, and the illustrations by Cora Gordon are a most refreshing change from those usually supplied.

In Canon Hannay's account of his impressions of Hungary, there is more commendation of the virtues of peasant life. In Budapest he found present "a settled sense of dilapidation" brought about by the rapid changes of war and revolution. Before visiting Hungary he had come to the conclusion that the Magyars must be pleasant and agreeable people; to such an extent were his anticipations justified that he confesses he may have come to regard them very partially. Certainly, though he relates many tales of Tzigani bands, of the terrors of tipping, and of the life of dwellers in flats in Budapest, his book reads rather like a political tract: perhaps even the wayfarer in Hungary cannot avoid becoming a partisan.

Czecho-Slovakia is one of the countries for which the previous author professes contempt, it may be because he regards it as an upstart. Mr. Robson's book should remove this impression, if this were necessary. He portrays the Czechs as a people with a long and creditable history, during which they have had several links with this country, and he is anxious that they should not now be isolated from the outside world, particularly from the countrymen of Wyclif. His cheerful and informing book should certainly contribute something to this end.

'The Naples Riviera' recalls the reader from modern political problems to the historic past. It is described as "a medley of history and of imagination, of biography and of private comment," and contains chapters on Pompeii, Vesuvius, Sorrento and Capri. It is effectively illustrated by Maurice Greiffenhagen.

ASIA

Structures and Settlements in Central Celebes.— Walter Kaudern. Gothenburg: Elanders Boktryckeri Aktiebolag. 1925. $9\frac{1}{2} \times 6\frac{1}{2}$, pp. xiii. + 404. 263 *Illustrations and* 6 *Maps.*

This is the first of ten volumes that Prof. Walter Kaudern designs to publish on the results of his ethnographical studies made in Celebes from 1917 to 1920; the zoological and botanical results of his expedition will be published separately. The author states that publication has been assisted by a grant from the Swedish Government, whose warm encouragement of its country's scientists and explorers is highly to be commended. Prof. Kaudern's work merits much support. He writes as a man of science for men of science, perhaps particularly so in this volume, which treats in minute detail the various native buildings—dwelling-houses, padi-barns, shelters, and especially temples—in Central Celebes. The labour involved in this work alone must have been prodigious, and no praise can be too high for the conscientious manner in which it has been performed; the construction drawings by the author are admirable, and the maps adequate. Short notes on geography, climate, vegetation, and inhabitants of the region traversed are included, together with an account of its previous exploration. On the other hand the English translation leaves much to be desired, and the lack of an index is a serious defect.

O. R.

People of the Steppes.— Ralph Fox. London: Constable & Co., Ltd. 1925. $8 \times 5\frac{1}{2}$, pp. viii. + 246. *Illustrations and Sketch-map.* 8*s.* 6*d. net.*

The author spent several months in 1922 and 1923 on the steppes of Turkistan buying horses for a Relief Mission. Besides coming into contact

with Cossacks and Kirghiz Kazaks, whose history and habits he deals with at length, he also met many strange people—both of the old and new *régimes*, on this disturbed borderland between Europe and Asia. He can write effectively, and his character sketches and tales of adventures are well done. Though he sets out with the laudable intention of not writing a political work, it must be admitted that he loses sight of this before the end, and writes an ardent eulogy of contemporary Russia.

The Arab at Home.— **Paul W. Harrison.** London: Hutchinson & Co. [1925.] 8½ × 5½, pp. xii. + 346. *Sketch-map and Illustrations.* 15*s. net.*

"Home," in this book, means Eastern Arabia—Gulf Arabia with a *hinterland* reaching to the oases of Wadi Hanifa, but not south, west, or north of these; not more, in fact, than about a sixth part of the area which is called Arabia as distinct from Iraq on the one hand and Syria on the other. The author admits this limitation, but he does not warn his readers of it at the outset, generalizing, and for a long time continuing to generalize, about "the Arab," as if he speaks of all Arabs, and about the "Oasis Community," when he means in reality only the Hasa folk, with addition perhaps of some Nejdeans. The fact soon dawns, however, on the discerning reader, and, once realized, gives redoubled interest and enhanced power of conviction to that part of the book which is concerned with social study. The author, one feels, is describing things seen, and things seen not once only but on many occasions during long years of familiarity with Gulf lands and peoples. He has seen them too from an angle unusual in Arabia—from the point of view of a medical missionary. Such have rarely penetrated the Peninsula, and none but Dr. Harrison has been suffered in Nejd, or even, probably, in Hasa. Not less valuable than the experience of this observant unprejudiced doctor when travelling among inland folk who knew him and opened all doors, though sometimes with cursing, has been his longer and larger experience of receiving all sorts and conditions of Arabs in the comparative security of his own hospital in Bahrein. There he could probe souls as well as bodies. But he has seen too much of the Arab, both in the waste and the oasis, ever to attempt his conversion out of hand. Never was an apostle more patient, tactful, and appreciative of his subject's creed. The most he will do is to sow one little grain of Christian seed and let his man go. The one grain is the parable of the Good Shepherd—the very story for a Bedouin. If, as he says, you give a Bedouin "a digest of the Westminster Catechism," well—"he doesn't get it!"

With just so much warning of the book's limitations, and just this criticism—that the author himself tends to forget them and perhaps is not fully conscious how and why Western Arabian Societies differ from Eastern, and from one another—we commend 'The Arab at Home' as a study of quite exceptional interest and worth. There is, indeed, no study of the Arab, known to us, which is at all like it. Without putting it for a moment into competition with Doughty's classic portrayal of the Bedouin, one may still claim for Dr. Harrison a picture more close to life—more close, at any rate, to Bedouin life as it actually appears to the average occidental when he is in direct contact with it. Doughty's selective artistry was typically Victorian in its suppression of the grosser and uglier features of his noble savage. Dr. Harrison faithfully goes the whole hog, insisting on abnormal sexuality and all its consequences—not merely those which come into a doctor's peculiar province—and on lousy filthiness and other unlovely details. Yet, when all is said, noble savages the Bedouins remain for Dr. Harrison as for Doughty.

The fidelity of the author's descriptions of the lower Arab classes—not only those poverty-stricken nomads, but also the all-but-serfs who work in oasis gardens, and the veritable bond-slaves who dive for pearls—gives his book considerable ethnographic value. The ordinary Western traveller, admitted to Arabia, hardly makes acquaintance with others than his camel-men and servants, except sheikhs and their retainers. The doctor saw and talked with all. The picture he gives of Arab social life is perhaps somewhat more sordid than the true average for the whole Peninsula. What he says more than once about the family, for example, would not hold altogether for the Yemen folk, or indeed generally in the west and north. The Gulf coast Arab of the humbler sort is the lowest of the Peninsular types, except some of the south-coast men. But since, none the less, he represents a considerable proportion of the whole population, a faithful study of him is as valuable as one of any other element, and no one interested in Arabs should fail to read Dr. Harrison. His later chapters (except one on his hospital experience) come with rather less first-hand authority (are some of them reprints of popular lectures?); but they are full of penetrating observation and apt phrases. D. G. H.

Account of a Photographic Expedition to the Southern Glaciers of Kangchenjunga in the Sikkim Himalaya.— N. A. Tombazi. *Privately printed.* Bombay: 1925. 10 × 8, pp. 74. *With Illustrations, Map, and Tables of Observations.*

This handsome and well-illustrated volume which, together with a collection of sixty-four very attractive large photographs, Mr. Tombazi (now, we understand, a British subject) has presented to the Society, is a welcome and valuable gift. It will be specially acceptable to those who already know something of the Himalaya, and take a special interest in the further exploration of the Kangchenjunga group, which lies so conveniently close to the great hill-station of Darjeeling.

Mr. Tombazi's narrative shows with how little difficulty an expedition capable of doing good work among the snows may be organized even by a single traveller. Though unduly buffeted by the weather he was able to visit most of the southern glaciers of Kangchenjunga, to reach a height of 20,000 feet at the head of the Aluktang, and to make one important addition to our knowledge which may be of practical use to future explorers. He succeeded in solving a point Mr. Freshfield's party had left doubtful by climbing with native porters the south side of the Zemu Pass, the gap between Kangchenjunga and Simvu. This in conjunction with the Guicha La supplies a direct route from Darjeeling to the camping-ground at the Green Lake Plain, in the very centre of the group. This is the more important since Mr. Odell last year found the jungle so thick that he failed in an endeavour to force his way up through it from Lachen to the foot of the Zemu Glacier, and was consequently unable to visit its upper portion or to explore the heights about Siniolchum and Simvu.

Mr. Tombazi's narrative is written in a very clear and modest style, and abounds in precise and, we may add from personal experience, accurate topographical detail. He, as his photographs also demonstrate, has an artistic eye, and he will succeed in conveying to his readers much of the impression created by the stupendous rock precipices, the fluted snow cliffs, and frozen bosses of the great peaks that cluster round the outsoaring crest of Kangchenjunga. His journey—not his first in Sikkim—was made in April, when the snow was lower down than in September, the weather continually broken, and

the temperatures also as a rule lower. The party met with no hazardous adventures, though the climb to the Zemu Gap was obviously—as it looks—an arduous one.

Mr. Tombazi records, however, one startling incident which may raise afresh the discussion as to the alleged "Snow-men." While camped under Kabru at a height of about 15,000 feet, he saw at a distance of 200 to 300 yards a figure resembling a man seemingly without clothes. The tracks were subsequently examined, and were apparently those of a biped. It would be interesting to have the opinion of experts on the facts as stated by Mr. Tombazi.

The photographic map adds little if anything to Mr. Garwood's sketch-map. It shows that the party covered mostly old ground. As is natural, the southern valleys and glaciers of Kangchenjunga, being the nearest to civilization, have attracted most of the travellers in this fascinating region. The Simvu–Siniolchum ridge remains almost virgin ground and calls for exploration by competent mountaineers. Mr. Tombazi made observations for altitudes, and also supplies a meteorological table.

H.R.H. the Prince of Wales's Sport in India. Bernard C. Ellison, Naturalist to the Shoots. Edited by **Sir H. Perry Robinson, K.B.E.** Preface by the **Earl of Cromer, G.C.I.E.** London: Heinemann. 1925. 10 × 7½, pp. xxx. + 286. *Illustrations and Sketch-maps.* 32*s. net.*

As a record of His Royal Highness's sport during his Indian tour this well-produced volume must be well-nigh complete. The accounts of the hunting trips, planned on a great scale for him chiefly by the ruling princes, are very full, with diagrams, technical details, and records of the bags. The game was naturally very varied, the Prince's bag including tigers, rhinoceros, black buck, and Sambhur, as well as a lot of small game. He also took part in pig-sticking, racing, and polo, all of which is recorded here. But the book is something more than a pure record of sport. Mr. Ellison has gathered together a great deal of matter which should be of use to sportsmen in India. There are notes upon the flora and fauna of the areas visited, on local conditions and customs, on the preserving of trophies, and so forth. Mr. Ellison does not hesitate to express his own opinion upon the character of the various sports. All this latter information is however rather scattered throughout the book, through the plan necessitated by its subject. The illustrations are very numerous and cover the ground thoroughly.

A Wayfarer in Unfamiliar Japan.— Walter Weston. London: Methuen & Co., Ltd. 1925. 7½ × 5, pp. x. + 203. *Forty Illustrations and a Map.* 7*s.* 6*d. net.*

A writer can have but one valid reason for adding to the long list of books on Japan, and that reason must be that he has something to say that has not been said before. Judged by this standard, Mr. Weston's interesting and informative book is certain of a welcome, for during his long residence as a chaplain in Japan he has himself travelled many unfamiliar tracks and come in contact with many unfamiliar phases of Japanese life; and other wayfarers, whether they travel by the fireside or tramp in reality Japan's unbeaten tracks, could find no more sociable or sympathetic guide.

He does well to show that, contrary to the popular belief, Japan has not been "spoilt" by modern influences; it is, as Mr. Douglas Freshfield once said, "only spoilt for those who have not the energy to go and look for it outside the European quarters of the great seaports." Up-country Japan remains untouched and much as it has ever been; and Mr. Weston mentions an ancient

woodcutter of Koshu who had never heard of Europe or America, knew nothing even by report of the Great War or of the Christian religion, and had never seen a cart drawn by a horse.

Mr. Weston has done well to embody in his book the admirable paper he read recently before the Society, showing the part Nature has played in moulding the character of the Japanese; and those who remember the beautiful lantern slides with which that lecture was illustrated will be glad to renew acquaintance with some of the pictures here. As he observes, it is difficult to determine whether Japan's phenomenal progress in modern times is most due to its geographical position and surroundings or to the character of the people themselves. In spite of its favourable position, which brings it closer to nearly half the population of the world than any other industrial people, and an invigorating climate with ample warmth and rainfall for producing a rich variety of vegetation, the excessively mountainous character of the islands leaves only a small proportion of its surface capable of cultivation. Yet it is their mountains which have given the Japanese their energy and hardiness, just as upheavals of Nature, in the shape of floods and earthquakes, have given them their indomitable spirit. Mr. Weston concludes his book with an informative chapter on the earthquake of 1923. O. R.

AFRICA

Au Hoggar.— **Conrad Kilian.** Paris: Société d'Éditions Géographiques maritimes et coloniales. 1925. 9 × 5½, pp. 190. *Illustrations and Sketch-map.* 18 *frs.*

When others were engaged in sensational motor-car journeys across the Sahara, the author, in 1922, alone and unostentatiously accomplished in the Ahaggar massif some valuable scientific work which has been collected in the present volume. He undertook a close examination of one particular area south of Temassinin and reduced the various formations to a system consisting of a central mass of crystalline rocks disturbed by much recent volcanic activity, surrounded by a ring of unconformable strata represented by the inner and the outer Tassili groups of the region. His conclusions show that the hitherto accepted Devonian attribution of the inner area is too recent, and that a pre-Devonian and possibly pre-Cambrian origin must be admitted. He regards the folding and tilting of the Tassili formations as due to a wide movement analogous to the Algonquian System, and by analogy he has named the whole "la faite Saharienne." His thesis is unfortunately somewhat hard to follow owing to the arrangement of the book, which is a compilation of several scientific monographs, a report on the possibility of a trans-Saharian railway running by way of Temassinin, and extracts from the traveller's route diary; moreover, the maps and photographs are indifferent, and there is no index. Apart from the very laudable endeavour of this young traveller to throw more light on the problem of Saharan geology, there is much of general interest to add to the value of the book. The old controversy about a Saharan sea caused by inlets from the Mediterranean and Atlantic is revived, and the view which favours their one-time existence is held to be not easily dismissed. The author consequently also favours the view that a more humid climate and luxuriant flora obtained in the past. He throws doubt upon the very existence as a continuous channel of the great Igharghar valley, and seems to be unduly optimistic about the water supply for his railway. From the scientific standpoint he writes many unorthodox things, but he must be forgiven them for a gem which he has contributed to the world's collection of aphorisms about the camel. In describing the habits of the animal and the difficulty of pasturing while travelling

he remarks that " . . . cet animal (est) si inattendu qu'il semble avoir été forgé un jour de distraction." F. R.

The Spirit-ridden Konde.— **D. R. Mackenzie.** London: Seeley, Service & Co., Ltd. 1925. $8\frac{1}{2} \times 5\frac{1}{2}$, pp. xvi. + 318. *Plates and a Map.* 21*s. net.*

Ungonde, the country of the Konde people, lies round the north end of Lake Nyasa, partly in Nyasaland and partly in Tanganyika Territory. In the fertile and healthy highlands the population is dense, and the soil and rainfall are such that two crops of some foodstuffs are taken annually. The Konde are adapting themselves to the new conditions resulting from civilized intrusion, though they have not taken the white man to their hearts as guilelessly as have some other tribes. As workers they are less active and less reliable than some of their neighbours, but they are often expert thieves. Their Chungu, or chief, now greatly limited in power, was formerly a priest-king, who was put to death when there seemed a risk that he might bring calamity on the country by dying peacefully. We may note that descent is patrilineal, that there is initiation for girls but not for boys, and that the birth of twins is reckoned one of the greatest of misfortunes. There was apparently only one god, even before the advent of the missionaries, but ancestral spirits are of great importance, and offerings are made to them. In the after-life the rich man, more fortunate than with us, remains rich, and the poor man poor. It is interesting to note the use of the waxen image (" corp chreadh "), the melting of which brought death to the original. In this, as in some other features of Konde magic, there is a resemblance to ancient Egyptian practices.

Cattle play a very prominent part in Konde economics, but agriculture is also important. Each village has its banana groves, and amongst other food-plants grown are maize, cassava, millet, sweet potato, peas, beans, and ground nuts.

The author has fitted his title to the impression made on him by the magical and religious customs of the people, but it is not clear that the Konde are more than usually " spirit-ridden," and in the matter of gods there appears to have been even a shortage. But without making any claim to be an ethnologist Mr. Mackenzie has succeeded in giving an extremely interesting account of the people amongst whom he has lived for twenty-four years. If he has not delved so deeply into the black man's mind as to be able to codify its contents to the satisfaction of the specialist, he has at least observed and placed on record much that is of value. The task of writing the book was " undertaken largely at the request of some of the leading men of the tribe," and we may congratulate them on their choice of a chronicler, as well as on the exceptional enlightenment to which such a request testifies. H. S. H.

AMERICA

North America.— **J. Russell Smith.** London: G. Bell & Sons. 1925. 9×6, pp. viii. + 849. *Maps and Illustrations.* 25*s. net.*

This volume, as the sub-title states, treats of the " People, and the Resources, Development, and Prospects of the Continent as an Agricultural, Industrial and Commercial Area." It makes an interesting departure from the methods of the majority of treatises on the geography of particular regions by its omission of any survey of the physical features or climate or minerals *per se*. The two opening chapters are introductory: the first a brief general discussion of " The Geographic Environment," the second more specifically concerned with North America as " The Continent of Opportunity . . ."; while the last (forty-seventh) chapter summarizes the author's conclusions on " The Trade, Place and Future

of North America." The characteristic feature of the work is the division of the continent into "Human-Use Regions," shown on the large map which accompanies the book: forty-two chapters are devoted to these regions taken seriatim, while the remaining two (chapters xxxviii. and xxxix.) discuss the influence of a tropical climate on human development under the titles of "Peoples on the Gulf and Caribbean," and "Government on the Gulf and Caribbean." The author has not included a full discussion of the basis of his Human-Use regions; but refers us (by a footnote on p. 33) to his article on "The Elements of Geography and the Geographic Unit," in *School and Society*, vol. 17, No. 441. Here the reader is left to infer the principles of his division from the examples. The titles of several chapters suggest the basis, *e.g.* xvii. The North Central Dairy Region; xix. The Spring Wheat Region; xx. The Upper Lake Region—A Land of Exploitation and Raw Material. In each of the regional chapters there is first a description of the dominating human activities; and the account of the physical conditions and the location is directed toward the elucidation of this description. In regions of a simple type, *i.e.* where the human occupations show a direct and simple relation to the geographical environment, the method is very effective, and the reader obtains, for example, a vivid picture of the fishing region in "The Coasts of Newfoundland and Labrador" (chapter iii.). In a far more complex region such as that named "The Erie Canal Belt" (chapter vi.) the method of regarding the route between the ocean and the lakes as the central feature does produce an impression of unity and allow a vivid presentation, though one may feel that it is possibly too great a simplification to be in accord with all the facts.

In every one of his regions the author is concerned with the potential value, as well as the past and present utilization or exploitation, of the natural resources; and the work exemplifies the view that the geographer is concerned to study the resources of the Earth in order that they may be used more effectively for the benefit of mankind. The book is abundantly illustrated by maps, diagrams, and pictures, and is written in clear and vigorous English. It is one of the most important contributions to human and regional geography that have appeared for some time, and deserves the careful attention of every one interested in either the topic or the method. C. B. F.

The Central Caribs.— William Curtis Farabee. University of Pennsylvania. The University Museum Anthropological Publications, Vol. 10. Philadelphia: 1924. 44*s. net.*

This handsome quarto describes the Central Caribs of Southern British Guiana and Northern Brazil. It contains 300 pages, a fine coloured frontispiece, and 40 extremely clear plates from photographs, all reproduced in the sumptuous manner which we are accustomed to in American scientific memoirs through—to the envy of our investigators—the generosity towards science of her millionaires. It includes also a good index and a bibliography. The material was collected by the Museum's South American Expedition of 1913 to 1916. The Central Caribs, here described in greater detail than ever before, live in contact with the other Carib tribes whose history is recorded in the ninth volume. The book is naturally almost wholly devoted to ethnology and only incidentally to geography. Nevertheless, while giving their chief attention to the expedition's main object, its members made extensive collections of museum or zoological-garden value, besides constructing a map of the region based on observations taken throughout the journey. "Along the rivers traverses were made by watch and Brunton compass, and across country by pedometer, watch, and compass. The traverses

were checked by some 400 observations of the sun and 30 different stars.' "Our latitudes are accurate, but the longitudes," observes Dr. Farabee, "are only fair approximations; yet the probabilities are that our map will not be improved upon for another generation." Several mistakes in earlier maps of the Corentine River are rectified. "Maps as late as 1910 show the Corentine flowing due W. for 15 or 20 miles to join the New River, which is flowing N.W. The New is represented as the larger river, and its course continued by the Corentine for 10 miles. The fact is that the Corentine is the larger river, and the New enters from the W. at a point where the Corentine has just changed its course to a little E. of north, and this course is continued for 15 miles to the mouth of the Lucie River."

The Central Caribs are those of the open Savannah and of the forest. Of the former group the Macusi, the largest tribe, have their chief villages on the Kanuku mountains and the region of Lake Amucu. They occupy the northern part of the great Savannah, which reaches from the banks of the Essequibo nearly to the Venezuelan boundary, and from the Amazon forests to the foot of the Pakarima mountains—"an undulating plain dotted with round-tipped grass-covered mountains and islands of forest growth." The plain, elevated about 600 or 700 feet, is interrupted by depressions which become lakes in the wet, and meadows in the dry, season. "One of these depressions was the mythical lake Amucu on whose shores stood the Golden City, the El Dorado, of the Spaniards." "The other group of tribes is found in the depths of the forest along the Acari mountains and the headstreams of the rivers on both sides where the rainfall is greater, agriculture more difficult, and game more plentiful." The natives therefore depend for their food less on cultivation than do those of the plain. These tribes, few of them mentioned in the ethnological text-books, are described with all the detail possible to obtain—and very little escaped the vigilance of the expedition—as to their material and social culture, their language and somatic characters. The region each occupies is now accurately located on the map. The central tribes are: the Macusi—who, "when the projected railroad opens up their country," as Dr. Farabee remarks, "will be found a delightful people"—the Waiwais, Waiwĕs, Parukutus, Chikenas, Katawians, Toneyenas, Diaus, Wakeras, Kumayenas, Urukuenas, and the Apalaüs. On the Maraca river are found some remnants of former Carib tribes: the Zaparas, Azumaras, and the Porokotos. As little is known of their culture and language, "it seems desirable," writes Dr. Farabee, "to record what we have collected because in all three cases pure bloods will disappear with the present generation."

This volume—a very acceptable contribution to our knowledge of a people hitherto imperfectly known—is a record of a very difficult and perilous piece of exploration admirably executed. H. O. F.

Joyfull Newes out of the Newe Founde Worlde.— Written in Spanish by **Nicholas Monardes**, Physician of Seville, and Englished by **John Frampton**, Merchant, Anno 1577. With an introduction by **Stephen Gaselee**. Two volumes. London: Constable & Co., Ltd. 1925. $8\frac{1}{2} \times 6$, pp. (1) xxvii. + 177; (2) 188. *Illustrations.* 36*s. net.*

These two volumes are reprinted, in excellent style, from the sixteenth-century translation by John Frampton of the medicinal essays of a Spanish physician of Seville, originally published in 1569 and 1571, and concerned chiefly with descriptions of curative plants and herbs brought to the Old World from the "Indias." To this new edition Mr. Stephen Gaselee has contributed a scholarly preface.

Dr. Monardes lived in an age of which one would fain have more intimate glimpses. He was born a year after Columbus stumbled upon the West Indian islands, and must have grown up in his native Seville in an atmosphere full of the goings and comings of adventurers and officials concerned with the golden discoveries of Mexico and Peru, and the wonders of the regions bordering the Caribbean. The pioneer and the priest were followed by the man of science. It is remarkable how great was the development of all nautical knowledge, of cartography and astronomy, amongst the Spaniards who devoted their lives to the New World; and the book of Nicolas Monardes is proof of the alert attention of the medical men of the day to all that came from the West that might be used in the art of healing. The doctor of Seville carried on correspondence with Spaniards in many parts of the colonies; was familiar with strange roots and herbs from Charcas and Guayaquil, from Cartagena de las Indias and from Mexico; and if we have outgrown belief in the Bezoar stone and Dragon's Blood, we have learnt to appreciate the "greate vertues" of the "hearbe of muche antiquitie," Tobacco.

Tropical and sub-tropical America were forbidden ground to the English; glimpses of its wonders came chiefly from the stories of corsairs, and thus when John Frampton, an English merchant of much Spanish experience, encountered the book of Monardes and made his delightful translation, he offered a treasure-house of rare stories of this unknown country. It is not surprising that this work created a sixteenth-century sensation, and that its popularity has lasted for three hundred and fifty years. It makes excellent reading, and despite its marvels is full of sound common sense. L. E. E.

PHYSICAL AND BIOLOGICAL GEOGRAPHY

Block-Diagrams and other Graphic Methods used in Geology and Geography.— Armin Kohl Lobeck. New York: John Wiley & Sons; London: Chapman & Hall. 1924. Pp. 206. 288 *Illustrations.* 22*s.* 6*d. net.*

The method of illustrating earth-forms and their geological structure by a combination of view and section, or block-diagram, was first extensively used by Prof. W. M. Davis some thirty years ago. Teachers of geography who were not naturally artists must have often been dissatisfied with their attempts to imitate these diagrams on the blackboard. Prof. Lobeck now comes to their help with what is really a treatise on practical perspective with special reference to their particular needs. This constitutes the first half of the book. In the second half the subjects dealt with include isometric projections and mechanical devices for obtaining them from maps, "cabinet" projection (for crystal forms), the graphic solution of certain geological problems, landscape sketching, and the drawing of highly elaborate block-diagrams. The whole constitutes a very valuable work of reference for geographical and geological laboratories. A. M. D.

An Introduction to Physical Geology, with Special Reference to North America.— William J. Miller. London: Chapman & Hall. 1925. Pp. xvi. + 435. 350 *Photographs, Maps, and Sections.* 13*s.* 6*d. net.*

Geology in its Relation to Landscape.— Junius Henderson. Boston, Mass.: Stratford Co. 1925. Pp. vii. + 152. 95 *Photographs and Diagrams.* 6*s.*

The subject-matter of these two books is much the same: geological agents—streams, glaciers, the sea, etc.—their work in carving the Earth's surface, and the resulting land-forms. They differ greatly in style, that of

Prof. Miller being simple and restrained, while Prof. Henderson's is flowery, and he gives many extracts from the poets. The two works will therefore appeal to two distinct types of reader. The photographs in both are well chosen and well reproduced. Either will make a good gift book for school children interested in geography. A. M. D.

HUMAN AND HISTORICAL GEOGRAPHY

The Geography of Commerce.— W. P. Rutter. London: Pitman & Sons. 1925. $8\frac{1}{2} \times 5\frac{1}{2}$, pp. 432. *Maps and Illustrations.* 5*s. net.*

The number of books dealing with the commercial and economic aspects of Geography steadily increases, and a comparison of the avowed aims of the authors and of the scope of their work makes an interesting study. The 'Geography of Commerce' seeks to give a "broad survey of Commercial geography, and to show, though imperfectly, its soul and deep abiding truths," and the writer is evidently impressed with the importance of his subject and its underlying interests. In fact, the sense one gets of his absorption in his task is one of the attractions of the book.

The work falls broadly into two parts: a general section concerned with the bases of commercial geography and world conditions, and one treating the British Isles in more detail. The preface indicates that it is designed for the use of "teachers and University students" among other readers. Even though, unfortunately, one may not yet assume that all teachers of geography have any intimate knowledge of their subject-matter, it is surely true that a great deal of the book is beneath the standard of University work. The average University student does not, it is hoped, need to read simple definitions of "evaporation" and "condensation" (p. 36), nor paragraphs like that on Fishing (p. 80), nor much of the general description in the regional section. The inclusion of this elementary matter is perhaps responsible for the great compression in other parts of the book—so, *e.g.*, the whole account of the world's rice production (the climatic demands of the plant, methods of cultivation, producing areas, and markets) is contained in twenty lines, while the problems of the wheat and cotton supplies are dismissed in three pages each. Any serious student would, it seems, desire a fuller treatment of such subjects, even though general descriptions had to be omitted. One wonders, too, how a student for whom, in the opinion of the author, it is necessary to define, *e.g.*, a continental climate, will interpret such statements as "In deep and subtle ways man is congruent and solidary with the Earth" (p. 145); or "The modern engineer links with an iron yet loving grasp all nations of the Earth" (p. 240); or "The pastoral age is the great watershed of religion, and the main fount of spiritual power" (p. 82); or even "Steam railways suited the British temperament" (p. 237).

On the other hand, the treatment of certain sections is very successful, and summarized descriptions such as those in connection with the manufacturing processes, or the zones of vegetation and animal life, and the economic subdivisions, are both clear and concise, calculated, as the author hopes, to be "thought-provoking and stimulating to the imagination." His adoption, in entirety, however, of Professor Herbertson's Natural Regions as a basis for economic subdivisions introduces some difficulties.

The book is, on the whole, well illustrated with maps, diagrams, and statistical tables, but while the maps and diagrams in the text are generally clear and helpful, the series of continental maps to show routes are so small and generalized as to be very difficult to read. (See, for example, the map

of Europe, p. 244.) Somewhat similarly, too, the bibliography given for most chapters is very useful, but the general references are of little real value. It does not materially help any one reading the chapters on the British Isles to be referred in general terms and without further discrimination to the "Publications of Bureaus of Agriculture and Commerce of U.S.A.," many of which are, of course, not relevant to the subject at all, nor to the "Journals of the Royal Geographical Society and the Scottish Geographical Society" as a whole.

There are certain signs of hasty revision. The five-line description of the site of Shrewsbury on p. 353 occurs again in much the same words on p. 355; the noun "Pennines" is treated as a singular and as a plural in the same sentence (p. 335); and there are ambiguities in phrasing, as, "Unscoured wool is mainly exported," when apparently the meaning is that the wool exported is in an unscoured condition. Yet the author places as fourth on his list of the disadvantages of the United Kingdom her "irrational spelling"!

B. H.

Vespucci World Map, MDXXVI.— New York: The Hispanic Society of America. 1925. $7\frac{3}{4} \times 5\frac{1}{4}$, pp. ix. + 466.

In the *Journal* for January 1915 mention was made of the discovery of a world-map drawn in 1526 by Juan Vespucci, nephew of the Florentine navigator, which had been acquired through Messrs. Quaritch by the Hispanic Society of America; and in view of the obvious importance of a map from such a hand, made only four years after the return of the *Vittoria* from her voyage round the world, the hope was expressed that a reproduction would be issued. Students of old maps have eagerly awaited such a reproduction, but could hardly be surprised if the circumstances of the time delayed its appearance. A few months ago, however, we received from the Hispanic Society four small volumes which proved to contain a full-size photostat copy of the whole map. But any feeling of satisfaction that this was at last made available was quickly dissipated on seeing the unfortunate style in which the work has been carried out.

Those who know the excellent facsimiles of other maps owned by the Hispanic Society, brought out under the care of Prof. E. L. Stevenson, had naturally expected that Vespucci's map would be produced in similar style, but they have been disappointed. It would seem, in fact, that a perverse ingenuity has been exercised to make the reproduction well-nigh valueless for serious study. For some occult reason the map has been split up into no fewer than 423 sections, each only $3\frac{3}{4}$ by $2\frac{1}{4}$ inches, so that only a minute fragment can be seen at once. (It is true that a general view is also given, but on so small a scale as to be illegible.) Many of the sections are naturally quite blank, and as there is no overlap, many of the names and legends are cut through at the borders, one half appearing, perhaps, in one volume, the rest in another, or even in two others. And this is not all. The small-scale key-map is divided into 24 numbered sections (in three tiers of 8), and the numbers appear also on the large-scale sheets; but there is no clue to the position of these ultimate fragments within the larger sections, which contain from 15 to 18 of them. To find any given part of the map in the body of the work entails therefore a tiresome search. On examination it is found that each large section is divided into three tiers, and that the sheets of each tier follow each other consecutively from end to end of the map; we thus get a succession of narrow strips, each only a ninth of the height of the map. To add to the confusion, the division between the four volumes is independent of the subdivision of the map itself. Vol. 2 therefore begins at quite a chance point before the upper tier of sections

is completed, and so on. A single praiseworthy feature is the series of sheets at the end showing special features—ships, coat-of-arms, and so forth.

The sheets are held together by rings within leather covers, and can be taken out at will, so that it would be possible to bring contiguous sheets together as desired ; but even so the minute size of the sheets and the relatively enormous margins would be extremely vexatious. The general title is shown on the back of each volume on a black vulcanite slip, but is engraved in such minute and indistinct characters as to be almost illegible.

We therefore come reluctantly to the conclusion that, well meaning as may have been the intentions of those who directed the undertaking, the time and money spent thereon have been largely wasted, and it is still impossible to attempt a discussion of the value of the map as a historical document, particularly as there is no accompanying text beyond a couple of pages by way of a very general introduction. There is nothing to show who is responsible for this curious form of publication ; but we can hardly suppose it to be the editor of previous map-reproductions issued by the same society. E. H.

GENERAL

Land Travel and Seafaring.— **H. R. McClure.** London : Hutchinson & Co. [1925.] $9\frac{1}{2} \times 6$, pp. 286. *Sixteen Illustrations.* 18*s. net.*

Mr. McClure himself describes this book as " a frivolous account of twenty years' wanderings," so that it would be unjust to complain that he has not given us more substantial information (as he was well qualified to do) about Kenya and the Gilbert and Ellice Islands. As it is, his reminiscences make pleasant reading, and he has the knack, so rare in books of this kind, of retaining the humour in a good story when he sets it down on paper. Mr. McClure began his career in the navy, and his first chapters deal with his experiences on the China Station. He left the Service in 1903, and was given an administrative appointment in East Africa, where he remained until, in 1921, he accepted the post of Resident Commissioner of the Gilbert and Ellice Islands Colony. The four chapters (which might well have been elaborated) devoted to this little-known group make good reading, particularly the account of the two islanders who drifted out to sea in a whaleboat without food, water, or sail. Their oars were useless against the current, and they drifted in the boat for ninety days, covering a distance of 1300 miles, eventually arriving at an island in the Carolines, emaciated but having sustained life by drinking rain-water and living on the dried flesh of six sea-birds they caught. Almost incredible as the endurance and restraint required for this ordeal appears, Mr. McClure vouches personally for the authenticity of the story, which deserves to rank with the most wonderful of human exploits.

The illustrations are excellent, though their source is not disclosed. The book lacks an index, and a sketch-map of the islands might have been added with advantage. Moreover, in omitting to record the year of publication the publishers are following a growing practice which cannot be too strongly condemned. O. R.

By Car to India.— **F. A. C. Forbes-Leith.** London : Hutchinson & Co. 1925. $7\frac{1}{2} \times 4\frac{3}{4}$, pp. 232. *Illustrations.* 7*s.* 6*d. net.*

Major Forbes-Leith tells the story of a notable achievement in a very entertaining manner. On the roads and tracks of South-Eastern Europe and Asia Minor much of his time was naturally spent in wrestling with pressing practical matters, generally tedious and often heart-breaking, but he possesses a temperament which enabled him to see the humour of every situation, and to

take stock of his surroundings with interest. At times one feels he is apt to criticize from a rather superficial acquaintance, to play the rôle of the conventional Englishman abroad, yet his book contains illuminating side-lights on the countries traversed. He writes of the neglected condition of Fiume, very feelingly of the absence of a bridge between Semlin and Belgrad, and of the warm reception he received at Sofia. In Asia Minor and Persia his war experience stood him in good stead, and, aided by diplomatic skill in dealing with Turkish officials and a capacity for making friends, he surmounted all obstacles, including an attack by brigands, and reached Quetta after covering 8527 miles in ninety-six running days.

Game Trails in British Columbia.— A. Bryan Williams. London: John Murray. 1925. 9 × 5½, pp. ix. + 360. *Illustrations.* 21*s. net.*

Big Game Hunting in the Himalayas and Tibet.— Major Gerald Burrard. London: Herbert Jenkins, Ltd. 10 × 6, pp. 320. *Illustrations and Sketch-Maps.* 25*s. net.*

Mr. Williams has spent many years in British Columbia, during some of which he held the post of Game Warden for the Province. He is thus able to give much first-hand information on the opportunities offered to sportsmen, and, from his own experiences, advice on the methods to be followed. He goes into considerable detail on the habits of the game to be got—principally mountain sheep, moose, various kinds of deer, and bears—of which he has several entertaining tales to tell. His own adventures when learning his craft, and tales of the men he has met—Indians, hunters, guides, survivors of the days of the Californian gold rush, and sportsmen of various brands—combine to make his book of interest even to those to whom the chance of putting his precepts into practice is unlikely to come. Though Vancouver has changed greatly since his first visit, and the country to some degree with it, he remains happy in the conviction that British Columbia for many more years will present opportunities to the sportsman who is not afraid of roughing it.

A slightly different plan has been followed by Major Burrard in his work, which is more strictly technical in treatment. His object is to show the way to those anxious to break fresh ground in the Himalayas. His first chapter gives a diagrammatic sketch of the geography of the range, and later chapters describe the kind of game to be found in the various valleys and slopes. Several sketch-maps showing the distribution of various species, including burrhel, Himalayan ibex, and Tibetan gazelle, add to the value of the book. Having pointed out where to go and what to look for, Major Burrard then gives practical advice on outfit, methods of travel, stalking and still hunting, and many details arising out of personal experience in the field.

Béled-es-Siba: Sketches and Essays of Travel and History.— W. E. D. Allen. With a Foreword by **Major-General Lord Edward Gleichen.** London: Macmillan & Co., Ltd. 1925. 8 × 5, pp. xi. + 244. *Sketch-Maps.* 8*s.* 6*d. net.*

Béled-es-Siba—the free or independent tracts of Morocco—besides giving its name to the main section of his book, is used by Mr. Allen to symbolize his revolt from the more conventional areas and methods of travel. He feels that "ease has slaughtered inspiration, that travel has become a pastime or a science, but that the art is dying, dead." Nevertheless, he is content to journey around the fringe of Europe, and is not above utilizing a Ford at times. His outstanding characteristic is his eye for country and his ability to describe it vividly. This is displayed most markedly in his description of the "bleak and

hot-baked waste" of the Béled el Hamra in the Middle Atlas—a really spirited piece of work. He can also sum up shrewdly, if sometimes severely, the varied peoples of Morocco—tribesmen, traders, officials, *colons*, and *légionnaires*. His sympathies are all with the French, whose methods he heartily commends: "The Frenchman is in North Africa for his own good, . . . and the indigène knows it and respects him for his honesty and for the disinterested good he brings." His appreciation of country also gives him an interest in military affairs, and he describes succinctly the little-known operations of the Allies in the Caucasus, 1853–1855, and the Serbo-Turkish campaign of 1876. Among his other sketches, he deals with the history and literature of Georgia. The vigour of his methods and opinions is reflected in his style, and when he recognizes that rather tiresome inversions and one or two similar affectations are not essential, it will be wholly delightful.

THE MONTHLY RECORD

EUROPE

Denudation Types in the Pre-Alps and Jura.

FEW regions have been studied so closely as the Jura in respect of the relation between structure and relief, and the processes of denudation there observable, with the resulting forms of surface, have been reduced to a regular system. It is often thought that the laws that hold for the Jura apply also to the Pre-Alps, which continue the line of the Jura to the south, in the Vercors and the Grande-Chartreuse. But in an interesting article in the *Annales de Géographie* for 15 September 1925, Mons. J. Blache shows that though the surface features of the two regions are no doubt related in their mode of origin, there are important differences which ought to be taken into account. In the Pre-Alps, particularly the Vercors, the relief is in particularly close relation to the band of hard Urgonian limestone, 200 to 300 metres thick, which determines the progress of erosion both above and below its own level. In the north it is still overlain in parts by softer strata, but as we proceed south we find that these have been entirely removed, so that the relief is conformable with the successive synclines and anticlines due to the folding of the strata. But this state of things does not last indefinitely, but as erosion progresses from the major transverse valleys, the limestone cap is itself removed in places, as is seen in the south-west of the district. This may happen in two ways, either by the lowering of the structural relief by erosion of the synclines (the more normal process), or by a remarkable kind of inversion of relief, in which it is the anticlines which are principally attacked by the working back of coombs from the transverse valleys. The reason for this abnormal state of things is that it is the truncated ends of the *anticlines* which offer the greatest extent of underlying softer strata, so that it is found that the higher the crest of the anticline, the more rapidly does erosion work back into it. The result is that a series of "perched" synclines remain as the last remnants of the old limestone surface, while the crest of a new hard stratum (Tithonic limestone) may be laid bare in the anticlinal valleys. This stage is to be seen in the eastern part of the Chartreuse, while in the southern Chartreuse the process has proceeded still further, and the Urgonian structural relief has been entirely destroyed, being partially replaced by one conformable to the Tithonic. None of these special features are to be found in the Jura. The paper ends with an attempt

to lay down the distinguishing characteristics of Jurassic and Pre-Alpine types of relief, as contrasted with a third and simpler type to which the writer gives the name Provençal, as it occurs (among other districts) in lower Provence.

The Climate of Greece.

This is discussed by Dr. E. G. Mariolopoulos in relation to rainfall, and the question of climatic change within historic time, in a publication of the "Presses Universitaires de France," 1925. The geographical distribution of the rainfall so far resembles that of England in that it is controlled by orographic relief under a regimen of marine south-westerly winds associated with barometric depressions moving in the direction of these winds, and hence the fall is notably heavier on the west coast than on the east. This is typified as between Pyrgos, with 34 inches falling on eighty-one days in the year, and Nauplie, with only 20 inches on seventy-two days. Of thirty-four stations listed Corfu stands highest, with an average annual rainfall of 49 inches—Volos, Zante, and Dimitzana coming not far behind—on a little over one hundred days, and Santorin lowest with 14 inches on sixty days, with Naxos, Athens, and others closely following. Thus while the western part of the country is abundantly watered the east is not so, and, taking the country as a whole, Greece suffers from drought, a circumstance due to the pernicious Mediterranean seasonal distribution, which is quite unlike that of North-Western Europe. The summer drought associated with the Etesian winds is in no part of the Mediterranean basin more prolonged or intense than in Greece, though here it is occasionally broken locally by violent thunderstorms; but the winter rains are intensified by the facility with which the interaction of warm south-westerly currents off the sea with the cold outflow from the Balkan lands generates barometric depressions.

The characteristic feature of rain in Greece is intensity rather than persistence, and the number of rain-days, as quoted above, is much less than in Northern Europe. For a warm country the peninsula and archipelago do not suffer inordinately from thunderstorms, and in consequence of the summer drought the seasonal maximum is displaced to autumn, when there is both warmth and moisture, and the frequency remains relatively high through the wet winter. At Athens they occur on only thirteen days in the year, about the same as in London. Snow is very abundant on the mountains for half the year, and is not nearly so infrequent in the lowlands as northerners fondly imagine, though it seldom lies for more than a few hours. In Athens it falls on an average on five days in the year, which one may compare with such sea-level places in our own country as Falmouth (five), London (thirteen), and Aberdeen (thirty-four).

After dealing with the various aspects of the precipitation, Dr. Mariolopoulos goes on to show that all the characteristics of the modern Grecian climate, including the strong Etesian winds and distressing droughts, are faithfully reflected in the ancient writers, and makes a point of refuting Ellsworth Huntington's arguments, particularly his views regarding the fluviatile source of the deposits beneath which Olympia was found buried. A good case appears to be made out for the general stability of climate since historic times, but in the absence of instrumental records such minor variations as may have occurred through the centuries, whether of a periodic or a progressive character, cannot be disclosed.

ASIA

Capt. Featherstone's Journeys in the Karakoram.

In the summer of 1922 Capt. B. K. Featherstone made a journey to the Karakoram region, in the course of which he attempted to cross the New Mustagh pass into Central Asia. He has described his experiences in *The Field* for 3 and 10 September 1925. The New Mustagh pass is about 7 miles to the west of the Old or Eastern Mustagh pass, crossed by Sir Francis Younghusband in 1887, who also reconnoitred the approaches to the "New" pass, which has not yet been crossed. Capt. Featherstone arrived in Skardu from Srinagar on July 6. After some difficulty in getting porters, he left two days later and took a little-used route to Askole over the Skoro La, a 16,700-feet pass. Here he experienced still greater difficulty in getting fresh porters, as the inhabitants were unwilling to attempt the New Mustagh pass. He was able however to leave on July 16, and camped for the night at Korophon, on the farther side of the Biafo glacier. The next day he reached Tsok, where his porters mutinied. After much argument they agreed to accompany him up the Punmah glacier, which leads to the New Mustagh pass. However, their unwillingness to advance increased, and it was with one porter only that, a few days later, Capt Featherstone reached Skeenmung, whence it might have been possible to ascend the pass and return in one day. The weather was bad, and he failed to persuade any porters to come up to Skeenmung, so that he had finally to abandon his attempt, almost within reach of his objective. On the return journey from Askole to Skardu, he followed down the Braldu and Shigar rivers instead of crossing the Skoro La, and paid a short visit to the Hoh glacier. From Skardu he set out on August 7 up the Shayok River, and a few days later arrived at Prahnu, where he met with a hostile reception from the inhabitants. Continuing into Ladakh through Kharu and Deskit, he joined a Kashgar caravan on the Yarkand road, which he accompanied to Panamik. He had hoped to reach the Karakoram pass from here, but through lack of time and transport was unable to do so. He returned to Srinagar *via* Leh and the Namika La. During his journeys Capt. Featherstone was able to make observations on the condition and movements of some of the larger glaciers, especially the Biafo, the results of which it is hoped will be published soon.

AFRICA

The East Africa Commission's Report.

The Report of the East Africa Commission, which has recently been published, constitutes a valuable survey of the present condition of the British Dependencies in that part of Africa, and the problems confronting them. The terms of reference fell roughly under two heads: first, the measures to be taken to accelerate their general economic development, and the means of securing closer co-ordination of policy on such important matters as transportation, cotton growing, and the control of human, animal, and plant diseases; secondly, the many problems concerning the social and economic conditions of the native populations, and their relations with the various administrations and with non-natives. Under the chairmanship of Mr. Ormsby-Gore, the Commission left England in August 1924, and visited Northern Rhodesia, Nyasaland, Tanganyika Territory, Uganda, and Kenya in turn. They are of opinion that a Federation of East Africa would at least be premature, though they emphasize the value of frequent conferences upon vital subjects, such as transport, agriculture, and disease. Through transport difficulties, their

visits to some of these territories were rather short. This experience emphasized their conclusion that the economic development of East Africa depends fundamentally upon increased transport facilities. In their opinion, the building of roads, on account of climatic and economic factors, cannot meet this need adequately, and the solution lies in further railway construction. In the neighbourhood of Tabora, they found that the 4000 tons of native-grown ground-nuts loaded on the railway in 1924 had been carried on native shoulders an average distance of 100 miles. The areas particularly handicapped by lack of railways are North-Eastern Rhodesia, Northern Nyasaland, and Southern Tanganyika. The Commission recommend the building of a railway from Ngerengere, on the Central Railway, to Manda on the northern shores of Lake Nyasa, *via* Kidatu and the Pitu, Rutukira and Ruhuhu valleys, and the immediate surveying of this 400-mile route. Other developments urged are the linking up of the potentially valuable Kondoa–Irangi area with Dodoma on the Central Railway; and the extension of the Uganda Railway through Soroti, Lira, and Gulu to the Sudan frontier. This would tap the rapidly developing area of the North-East Congo, which is unlikely for some time to have railway communications through the Congo valley. With regard to the Zambezi bridge problem, they advise further investigation into the suggested site at Sena, and into the possibility of the coal areas at Tete and Chiromo being sufficiently promising to supply further justification for its building. The Commission anticipates the time when all the East African railways will be consolidated into one system. This could best be done by connecting Moshi, at the foot of Mount Kilimanjaro, with Dodoma, on the Tanganyika Central Railway. As regards port facilities, it advocates concentration on the improvement of the three harbours at Beira, Dar-es-Salaam, and Mombasa. The Great Lakes, particularly Victoria Nyanza, are a valuable means of communication, and inquiry into harbour facilities in Speke Gulf and at Bukoba is urged.

The whole field of native problems is discussed in detail. Improvement of the native population depends on economic advance, which will supply the requisite funds. The Commission recommends the creation of a Trust Board for Lands to ensure security for the natives. It also points out the advisability of encouraging the transition from pastoral to agricultural habits, especially through technical instruction. The conflicting interests of native population and the supply of labour for public works and non-native enterprises are fully considered. The comparatively large return obtained by the native for cotton production, particularly in Uganda, is bringing many problems in its train, and is affecting the supply of labour. In general, compulsory labour is to be avoided, though this may sometimes be better than stagnation in a native reserve. In social life, the importance is urged of re-establishing tribal authority, and of securing enlightened chiefs or sultans.

The outstanding problem for the Tanganyika Government is said to be the tsetse fly, whose area is spreading. In some districts, by systematically burning out areas of scrub, and then ploughing them up immediately, the plague has been almost completely banished. The scope for research in this field, and also in those of anthropology, geology, and climatic and soil records is strongly emphasized, and the re-organization and extension of the Scientific Institute at Amani is also recommended.

AMERICA

Early Cartography of Chile.

The local cartographical history of the South American countries is known to few beyond the small band of specialists who have been engaged in dis-

cussions of boundary questions between the several countries. In Chile the subject has of late aroused considerable interest, and has been studied with especial care by the well-known bibliographer Don Jose Toribio Medina (author of a work on 'Sebastian Cabot in the Service of Spain' which appeared in 1908), who has brought together a unique collection of original maps, some of considerable rarity, and has published a systematic account of Chilean Cartography under the title 'Mapoteca Chilena.' With a view to making the work of Chileans in this field more widely known, the subject has been taken up by the Ministerio de Industria y Obras Públicas at Santiago, which has lately issued a series of reproductions of the more important maps, accompanied by a brochure in which Don Jose Medina gives an instructive historical sketch of early Chilean map-making, followed by a commentary on the several maps with short accounts of their makers ('Cartografía Hispano-Colonial de Chile,' Santiago, 1924, folio). The need of maps of her colonial possessions was felt by the rulers of Spain at an early date, and instructions were sent to the authorities in Chile that such maps should be made; but the work was long hindered by the want of persons competent to carry it out. One of the first attempts was that of the public notary of Santiago, Juan Hurtado, whose map (completed in 1573) is unfortunately lost. The rough sketch-map given in Herrera's history in 1601 was the first special map of Chile to gain a wide circulation by being printed. Another lost map is that of Padre Luis de Valdivia, known by literary references to have been made in 1621, which showed the region of the Biobio and the forts therein existing, as well as the line of frontier on the side of Araucania. The map given by the Jesuit Padre Alonso de Ovalle in his historical and descriptive account of Chile published at Rome in 1646, long served as a model to European cartographers. It was not perhaps entirely Ovalle's work, for a note accompanying it refers in terms of high praise to the "Mappa" of Fray Gregorio de Leon (mentioned too by other contemporary writers), though it is uncertain whether this was a map in the modern sense or a written description. Anyhow, it is unknown at the present day. An unpublished map made by Don Manuel José de la Lastra in 1680 is preserved in the British Museum, but is almost unknown to Spanish bibliographers. Really competent map-makers were still lacking, and when the San Felipe University was founded at Santiago it was some time before the Chair of Mathematics could be filled. To its first occupant, Fray Ignacio de Leon Garavito, we owe an important map of the Biobio river and adjoining regions made by order of Don Manuel de Amat in 1757–59. Señor Medina is inclined to attribute to him also the map published by the Spanish cartographer Lopez after an original by an author whose identity was hidden under the pseudonym of "Poncho Chileno." A map of some interest, as largely based on personal explorations, is that of the Jesuit Padre Joseph Garcia, made in 1768. Another important map preserved in the British Museum is the "Plano General del Reyno de Chile," made in 1793 by Don Andrés Baleato, which occupies ten sheets of the present Atlas. Others of the maps reproduced are of more local interest, but mention must be made of the fine engraved map of the whole of South America, in ten sheets, made in 1775 by D. Juan de la Cruz Cano y Olmedilla, regarded as by far the best of its time. A copy of this is in the Society's Collection.

HUMAN AND HISTORICAL GEOGRAPHY

The World's Wheat Supply.

The question of the future world supply and demand for wheat is discussed at length by Dr. O. E. Baker in *Economic Geography*, March 1925. His

conclusions are naturally general, but in working them out he raises some important points, and provides an interesting exercise in the handling of economic factors. Wheat is at present the food of the more fortunate white races, mainly Anglo-Saxons and certain portions of the European nations. On the basis of the present rate of growth, he estimates that these will number 800 millions a century hence. To meet this demand, at the present consumption, 7000 million bushels of wheat per annum would be required. Where could this be obtained? The controlling factors in its production are temperature, moisture, land forms, and soils. Wheat requires an average summer temperature of about 57° with no severe frost in July or August. In North America this isotherm runs approximately from the Arctic Circle in Alaska to latitude 50° in Eastern Canada. The northern limit in Europe and Asia takes a somewhat similar course. In South America wheat is confined to lower latitudes. Dr. Baker calculates that 41 million square miles of the Earth's surface enjoy these temperature conditions. Wheat, however, in the cooler growing regions, *e.g.* in North-East United States and the British Isles, requires a rainfall not greater than 40 inches per annum and not less than 10 inches. For the hotter regions, such as the Punjab, the upper limit is approximately 70 inches, the lower 20 inches. This rules out, among others, the dry areas of Mongolia, North Africa, and Australia, and the wet areas of the Congo, the Amazon, and Southern China, thus reducing the potential area to 11 million square miles. As to land relief: in the United States 22 per cent. of the land, otherwise suitable, is too hilly or rough for wheat growing. In Western Europe, the figure is said to be rather higher, about 35 per cent. Under this head, therefore, the potential area should be reduced to about 7 million square miles. There then remains the deduction for unsuitable soils. For the United States, again, the figure is given as 11 per cent., rising to 20 per cent. in Canada and Europe. This produces a final figure of 5·5 million square miles. This area is geographically distributed almost equally between North America, Europe, and Asia (1·5 million square miles each), with the remainder in South America and Africa (500,000 square miles each) and Australia (150,000 square miles). An interesting point is that at present only a tenth of this area is actually under wheat. In large areas there is not at present the human desire or skill to produce wheat. This is due to several economic and human factors. In the first place, where another less extensive crop belt occurs within the wheat area, wheat will tend to be excluded. This is the case in the cotton areas of the United States. Then other factors, such as the seasonal labour requirements of various crops, and the maintenance of soil fertility, favour diversity of crops. Against this there is the tendency to grow the most productive crop on the most valuable land. In this scale of value, wheat comes below vegetables, fruit, cotton, and corn, but above oats, rye, and hay. Assuming that the present balance between the various crops is maintained, 13 per cent. of the potential wheat lands in the United States could come under wheat, that is, 130,000 square miles, and 120,000 square miles in Canada. This would produce over twice the present amount, possibly 3000 million bushels. In Europe, production could probably be increased by one-third, and with improvements in Russia, could be nearly doubled, yielding 3500 million bushels. In Asia it is difficult to arrive at any accurate figure: no doubt, under a stimulus, Western Siberia, China, and India could produce the 3100 million bushels allotted to them by Dr. Baker. The potential resources of the other continents he estimates as follows: South America (chiefly Argentine), 1300 million bushels; Africa, 800 million; and Australasia, 450 million.

This gives a gross total considerably above the calculated requirements of a century hence, but, as Dr. Baker would acknowledge, to produce this supply would require in many regions developments almost revolutionary in character, and many years of peace.

GENERAL

Old Maps at the Amsterdam Exhibition, 1925.

Last summer Amsterdam celebrated the 650th anniversary of its attainment of the status of a city through the charter granted in 1275 by Count Floris V., which gave its citizens full freedom from toll on all the waterways in his dominions; and an exhibition brought together in honour of the occasion gave a remarkable illustration of the city's political and economic history, and its progress in the fine and industrial arts. We are here specially concerned with the exhibition of maps, which illustrated on the one hand the topographical development of the city, and on the other the contributions of its citizens to the general progress of cartography. A bird's-eye view by Cornelis Anthoniszoon showed the city as it was in 1536, the earliest date for which such a representation is known. (This man had a somewhat remarkable life-history, being not only a painter and engraver, but also a practical seaman, as shown by Dr. C. P. Burger in his edition of an old Dutch sea-book noticed in the *Journal*, vol. 58, p. 319.) An engraved version of the plan (1544) was also shown. The beginnings of Dutch sea enterprise were illustrated by the famous map of the North Polar region by Willem Barents (1598), and the map of the East Indian Archipelago of the same year made by Willem Lodewijcks during the first voyage to the East under Cornelis Houtman. The former is of special importance as the first Polar map made from personal observation. It has been several times reproduced, *e.g.* by the Hakluyt Society in 1876. It was impossible to include the big wall-map of Peter Plancius (1592), now at Valencia, but a unique example of a modified re-issue in 1602, by Henricus a Langren, now at Breslau, could be shown in its place. A fine map on parchment, drawn and coloured by hand, lent by the Landesbibliotek at Dresden, bears no author's name, but from its complete similarity in style to a map at the Bibliothèque Nationale at Paris by Harmen and Marten Jansz of Edam, bearing the date 1610, there seems little doubt that these were the actual draughtsmen of the Dresden map, whoever may have been its real author. The two maps seem generally similar in their representation of the geography, though differing in points of detail.* The exhibition also included the two large maps of Hondius and Blaeu owned by this Society, which were sent over at the special request of the organizers. Finally, attention may be called to large maps of the continents said to have been originally brought out by Blaeu in 1608, and republished by Hondius in 1624. Dr. Wieder considers these to be the "quarter-maps" mentioned in English literature of the time as having been already produced in Holland in 1602. They are ascribed to Jodocus Hondius by A. Linton in his work on navigation first published in 1603 (see Wieder, 'Nederl. Hist. Geogr. Documenten in Spanje,' Leiden, 1915, p. 174); while Wright in his 'Certaine Errors' (1599 and 1610) also

* Dr. F. C. Wieder informs us that fragments of yet a third copy of this map are in the hands of Sig. Olschki of Florence, and he calls attention to the privilege granted to Cornelis Claesz (Plancius' publisher) both to print and *write* the large map of the latter, showing that the multiplication of these large maps by hand was still practised at the time. It may be mentioned that the Nordenskiöld Collection at Helsingfors includes a "Pascaerte" (nautical chart) of the coasts of Europe by the same Harmen and Marten Jansz, engraved by Abraham Goos in 1620.

speaks of Hondius' " greater mappe of the World and of Europe " as already brought out before the former year. So that the priority in the production of large maps of the continents would seem to rest with Hondius rather than Blaeu.*

We have received a copy of the Catalogue of the Exhibition (in Dutch), in two volumes, the first of which consists of a series of instructive sketches of the development of Amsterdam from the earliest times—topographical, economic, literary, artistic, etc.—the section on Cartography being by Dr. Wieder. The second gives a full account of all the exhibits. There is also a short handbook to the exhibition issued in English for the benefit of visitors unacquainted with Dutch.

The Société de Géographie.

We are happy to offer our congratulations to the Société de Géographie on the good fortune which has befallen it. A brief notice from the President and the Commission Centrale announces that from November 9 the Library and Offices of the Society have been transferred from the Boulevard Saint Germain to the house of their late President, Prince Bonaparte, No. 10, Avenue d'Iéna, Paris (XVI^{e}). In this splendid house Prince Bonaparte was happy to entertain the members of scientific congresses held in Paris, and many scientific men of all countries must have sumptuous memories of his hospitality: the writer of this note recalls four such entertainments—the last at the celebration of the Society's Centenary in 1921.

Around a quadrangle built on by Prince Bonaparte behind the principal rooms of his palace, was the famous library to which many students are indebted. When Bonaparte's daughter and heiress, the Princess Marie of Greece, decided to give the immense geographical part of the books to the Société de Géographie, it became at once an anxious question where and how they were to be housed. Not many months ago we heard of plans for the extension of the old house in the Boulevard Saint Germain, and it was therefore with both pleasure and surprise that we received the news that the books of Prince Bonaparte will remain in their home, and that the Society is moving to them. Their friends of all countries will wish them increased prosperity and usefulness in their new palatial home.

Time Signals of the Bureau International de L'Heure (B.I.H.).

In the note on Time Signals for Surveyors in the Field (*Geog. Journ.*, September 1925) we referred to the new scheme of the B.I.H. adopted at the Cambridge Meeting of the International Union, involving a suppression of certain old-established time signals and modification of others. We have just received (December 14) Circular No. 5 of the B.I.H. announcing that these changes in a provisional form will be introduced on 1 January 1926. The changes, which include transmission from the Eiffel Tower of signals on short wave-lengths, 75 m. and 30 m., are too long to summarize here. A leaflet will be prepared for insertion in the recent special publication, ' Wireless Time Signals for the Use of Surveyors ' (R.G.S. Technical Series, No. 3), giving full details of the new schedules. The signals on short wave-lengths will be of particular interest to amateurs who specialise in this recent development, and we shall be glad to have information of their receipt at great distances.

* It would seem possible that the term " quarter-maps " might signify maps in quarter-sheets (such as a map of France by Hondius in the Society's possession) rather than of the " quarters " of the globe, especially as those mentioned by Wright and Linton are said to have been on Mercator's projection.

OBITUARY

Dr. Georg Schweinfurth

By the recent death of our Gold Medallist, Dr. Georg Schweinfurth, the last of the great pioneer African explorers of the nineteenth century has passed away. Among those explorers Schweinfurth took a high place for his scientific attainments and for the breadth of his interests in many different fields of knowledge; for though his geographical explorations won him world-wide distinction they formed a comparatively small part of his life-work as a whole. It was the field of botanical research that claimed his most whole-hearted devotion, and it may be doubted whether one man has ever brought together a more extensive and valuable collection of specimens than that formed by him during his many travels in Northern Africa and other parts of the Near East.

In a small brochure printed by him at Berlin towards the close of his active life we have a modest and matter-of-fact summary which permits us to follow him step by step throughout the whole of his career, only the most salient points in which can here be touched upon. His father was a German settled as a wine merchant at Riga (then largely German in language and composition), and there Georg was born—the youngest of a large family—in 1836. His bent for foreign travel was early aroused, and he sought to inure himself to its hardships by long and lonely wanderings on foot. At twenty he paid his first visit to his fatherland, and made the ascent of the Gross-Glockner (previously ascended only seven times) with three guides. After studying at Heidelberg and making a botanical trip (alone and on foot) in Sardinia, he made his first extended journey on the coasts of the Red Sea and inland thence to Kassala and Galabat, eventually reaching Khartoum. This journey already yielded useful results for the botanical knowledge of this part of the world Returning home with some difficulty during the war of 1866, he gained the support of the Berlin Academy for a still more ambitious journey with a view to the botanical exploration of the then little-known district of the Bahr-el-Ghazal. As is well known, it was this journey which brought him fame as an explorer, for he not only traversed the tract watered by the Bahr-el-Ghazal and its tributaries in various directions, but for the first time crossed the watershed between the Nile and Congo and reached the headwaters of an important river flowing west into the unknown—the Welle. This discovery finally disproved the idea that the Lualaba explored by Livingstone in his last journeys could belong to the Nile system. Another important result was the confirmation of the old stories of pygmies in this part of Africa. The explorer suffered a severe loss through a fire in camp which destroyed all his goods; otherwise he might have pushed his explorations still further. For this journey he received the Founder's Medal of our Society in 1874, and when his narrative appeared it was acclaimed as one of the best works of African travel so far written, and was translated into English, French, Italian, and even Turkish.

Although none of his subsequent journeys was of equal importance to this geographically, Schweinfurth made many more trips in various parts of North-East Africa, including the deserts and oases on both sides of the Nile; continuing his botanical labours and also making researches in geology, palæontology, and archæology. He made his home in Egypt, and took a foremost part, under the orders of the Khedive Ismail, in the foundation of the Egyptian Geographical Society. In 1876 he was one of the four German representatives at the African Conference summoned to Brussels by King

Leopold, the ultimate outcome of which was the founding of the Congo Free State. In 1880 he made a trip to the Lebanon, and in 1882, at the time of the revolt of Arabi Pasha, came, for the first and only time in his African experiences, in danger of his life during the disturbances at Alexandria. In 1888 he left Egypt and took up his residence in Berlin (he had been naturalized as "Reichsdeutscher" in 1879 through the intervention of Bismarck), and a home was found for his herbarium in the then Botanical Garden. But he continued to spend the winters in Egypt or other parts of North Africa, and in 1889 carried out a botanical expedition to Yemen. In Berlin he took some part in Colonial affairs, and became a member of the "Kolonialrat" in 1891. During his later visits to Egypt he turned his attention especially to investigations of relics of the Stone Age, and the identification of plant remains from ancient tombs or drawings.

Apart from his *magnum opus*, Schweinfurth's writings consisted mainly of contributions to scientific serials, and a list of such compiled in 1907 ran even then to 372 items. Only three years ago he had reprinted various narratives of his wanderings in Egypt in a work reviewed in the *Journal*, vol. **62**, p. 454. Another publication in book form was devoted to the Arab names of plants in Egypt, Algeria, and Yemen. This had appeared in 1912.

CORRESPONDENCE

The Wi Chu

I HAVE read Mr. J. Houston Edgar's interesting letter in the *Geographical Journal* for November, and should like to explain the position.

I visited Peitu (or Pitu) in 1913, and in my diary wrote the name of the river Oui Chu, spelling it like the French *oui*, because that represented the sound. Later I altered the spelling to Wei ("Notes on a Journey across Tsarung," *Geogr. Journ.*, January 1916), and finally to Wi ("The Valleys of Kham," *Geogr. Journ.*, September 1920).

In 1922 Mr. E. Teichman published his 'Travels of a Consular Officer in Eastern Tibet,' where he speaks of the Yu Chu, spelt Yü on his map. Teichman follows this river southwards from near its source, fourteen days' journey to Di, which is a village close to Peitu; he then crossed the Di La to Tsakalo (Yenching) on the Mekong. The Di La is within a few miles of Bailey's Banda La, crossed by Edgar and Bailey in 1911, and visited by me ("Peitu La") in 1922, the two passes being over the same divide. Clearly Edgar, Teichman, and I are referring to the same river.

After 1922 I accepted Teichman's name, hence it appears as Yü Chu on my map of Yunnan to which Mr. Edgar refers, and also in 'The Mystery Rivers of Tibet.' While I must therefore disclaim all responsibility for the name, I was, and am, quite prepared to defend Mr. Teichman, on whose authority I have relied.

But Mr. Teichman did not visit Peitu, or any other village below Di; and it is certain that the river is called Oui, or Wi, in its last 50 miles, since both Mr. Edgar and myself heard *only* that name between Peitu and the Salween, in the course of which journey the river is crossed twice, and followed for a day.

On the whole it seems a pity, in view of what Mr. Edgar says, that the name Wi should be lost. (One cannot accept Wa'i, because there is no aspirate in the recognized system for transliterating Tibetan names.) It is however

always confusing to have two or more names for a river, though often unavoidable—as in the case of the Tsangpo and Dihang. The question is, which is to have the preference? It would seem necessary to retain both names; for I cannot agree that Yü *is* a rendering of Wa'i; Mr. Teichman, who is both a Chinese and Tibetan scholar, would hardly plead guilty to that!

While I am on this subject, may I be allowed to dispel an illusion under which Prof. J. W. Gregory is labouring? In his interesting account of the geology of Chinese Tibet (*Philosophical Transactions of the Royal Society*, 1925), Prof. Gregory quotes Mr. Teichman to prove that in this latitude (29° N.) the Salween flows at a higher level than the Yangtze. He writes (p. 241): "In Chinese Tibet, the Salween is the highest river of the three [Salween, Mekong, and Yangtze]: for according to Teichman, Di, on the Salween, . . . is at 10,500 feet. . . ."

But Di is not on the Salween, as is clear from Teichman's narrative; it is several hundred feet above the Yü Chu, which has 50 miles to flow before it reaches the Salween. If the Yü Chu falls only 50 feet a mile—and judging by the pace of the river, the gradient is not less—the Salween flows 2500 feet below that, so is still doubtless the lowest river of the three. Thus the regular grading of the river-beds, from high in the east to low in the west is maintained even at the 29th parallel; and it may be added that, still further west, in the same latitude, the Tsangpo is flowing at a height of 3000–4000 feet only.

F. KINGDON WARD.

MEETINGS: ROYAL GEOGRAPHICAL SOCIETY: SESSION 1925–1926

First Afternoon Meeting, 16 November 1925.—The President in the Chair.

PAPER: The Origin of the Tuareg. Francis Rodd.

Second Evening Meeting, 23 November 1925.—The President in the Chair.

ELECTIONS.—K. Adlard-Coles, B.A.: Richard Ewsters Fitz-Symons Bampton; John Roland Bell; John William Bickle; Norman John Bickle; Robert Blair; Capt. Konstantine Lubienski Bodenham, I.A.; Astor Boisselier; Allen Holmes Bonner, M.I.M.E., M.I.M.S.; Ralph Holinsworth Bradley, M.A.; Alfred Henry Albert Broad, B.SC.; Hon. James M. Brodie, O.B.E.; George Bryce, M.D.; Lindsay Edward Bury, C.B.E., B.A.; Lieut.-Commr. Richard Evelyn Byrd (Junr.), U.S. Navy; Miss Florence Narcissa Campbell; Miss Hilda Kathleen Cargill, B.SC.; Gordon William George Cass, B.SC.; Harold Theodore Gladstone Beecher Caukwell; Baidya Nath Chatterjee, M.A.; Harbans Lal Chhibber, M.SC.; Eric E. Chipp, M.R.C.S., L.R.C.P.; Ambrose Leonard Collison, B.A.; Thurkill Cooke, B.A.; Reginald Ernest Cousens; George Holford Cowles, LL.D.; Arthur Albert Crane; Miss O. A. Creagh; Alfred Ernest Danks; John Delany; Mrs. E. V. Dennis; Daniel Oswald Oliver de Silva; Hubert Stephen Lowry Dewar; Mrs. Elizabeth S. Dickey; James Alexander Lawson Duncan; John Donald Campbell Duncan, M.B., CH.B.; Capt. G. J Eccles, I.A.; Miss Alice Elliott; Victor Stanley Evans; James Fergusson; Miss Margaret E. Finch; Arthur Isaac Flower; Rev. G. M. Franck; A. F. Gibbs; Capt. John Bagot Glubb, R.E.; Capt. Charles John Patrick MacAlpine Grant, I.A.; Robert Walker Gray, M.B., C.M., D.P.H., F.Z.S.; Capt. William

Grazebrook; Roland Frederick Herbert Green, M.P.; Capt. Eric Llewellyn Griffith Griffith-Williams, D.S.O., M.C., R.A.; Mrs. Florence M. J. Groves; Capt. John Percival Knight Groves, B.A.; Major Thomas Dalby Hackett, D.S.O.; Percy Barnes Haigh, I.C.S.; Mrs. Gertrude Hamilton; Laurens Morgan Hamilton; John Lloyd Hanson, B.A.; Capt. G. F. H. Hayhurst-France, D.S.O., M.C.; Sydney W. Hemmin; Sub-Lieut. Joseph Bushby Hewson, R.N.R.; Mrs. Adeline S. Hudd; Miss Jessie Edith Hutcheon; Miss Grace Enefer Hutchinson, B.A.; Edward Arnold Hutton; Rev. Henry Allen Job; Tom Price Jones; Walter Lowther Kemp; Capt. A. G. Lamplugh, M.I.AE.E.; Miss Julia Auguste Ledebeer, B.SC.; Victor G. Levett; Miss C. Longfield; Frederick V. McConnel; Robert Douglas Whyte Mackay, R.N.R.; Hugh Victor McKay; Geoffrey Spencer Madan; Prof. Ali Majid, Bey; Prof. Kirtley Fletcher Mather; Miss Barnette Miller, PH.D.; James Philip Mills, I.C.S.; Mrs. Evelyn May Mordaunt; Gwilym James Morris; Eben. James William Mountford; Miss Mary Winifred Newton, B.A.; Colonel Thomas Nisbet, C.M.G., D.S.O., I.A.; Major Charles Kennedy Cochran Patrick; Ernest William Phillips; His Excellency Miles Pointdexter; Walter Pontin; Thomas Edward Purchas, B.A.; Mrs. W. H. Pyman; Prof. Mohamed Hassanein Abd El Razek; Mrs. Maud Reed; W. N. Richardson; Victor Henry Sandford, M.A.; Rev. Dr. William Arthur Sheldon; John G. Sillem, LL.D.; Sirdar Sohan Singh; Rev. Edgar Ernest Smith, B.A.; Mrs. Lucy Smith; Frederic George Louis Spain, F.S.S., F.R.C.I.; William Johnson Spence; Miss Mary Steele; Hallyburton Tom Stretton; William Elgin Swinton, B.SC., F.G.S., F.Z.S., F.L.S.; Eustace Taylor; Walter Thompson; Dr. G. E. Tilsley; George Creswell Turner, F.L.S., J.P.; Arthur George Tuttell; Mrs. Frederick Vanderbilt; Capt. W. J. Warren, I.A.; Geoffrey John Websdale, M.C.; George Lambton Wells; Capt. Geoffrey Baynton Williams, M.C., I.A.; William Evance Winkley; John Shepard Winn; Lieut. H. B. Wood, I.A.; Joseph Wood (Junr.); Dr. Quetta Woodbridge, PH.D.; Frederick Youd.

PAPER: From Yunnan-Fu to Peking along the Tibetan and Mongolian Borders. H. Gordon Thompson, M.D.

Third Evening Meeting, 7 December 1925.—The President in the Chair.

ELECTIONS.—John Beavan; Miss Beatrice Bones; Joseph B. Charles; Capt. Colin Robert Duncan, R.A.; Arthur Clow Ford; Kenneth Harding; Capt. Robert Kerr, M.B.E., B.SC.; Munshi Kanhaiya Lal, B.A.; Miss Sheila Macdonald; Geoffrey Herbert Malins, O.B.E.; Joseph Leonard Marks; W. Thornton Opie; Albert Edward Rowles; Capt. Ernest William Saxon, B.SC.; Miss Mildred Shillington; Carlyle Spencer, B.A.; Jeremiah Zimmerman, D.D., LL.D., L.H.D.

PAPER: The Lakes of Scotland and of Switzerland. Prof. Leon W. Collet.